The West Front of the Parthenon Athens.

GEOMETRY AS APPLIED TO GREEK ARCHITECTURE.

By G. S. Aitken.

A Lecture delivered to the Edinburgh Architectural Association, 17th November 1909.

THERE is nothing on record of the use of any system of geometry in connection with ancient Greek architecture except general statements in Vitruvius which are not of any service as an absolute guide. Vitruvius remarks that " the architect after designing his building subjected it to the changes suitable to the point of view from which it was to be seen," his further words being, " when therefore the kind of symmetry and the magnitudes are settled, it is then the part of the judgment to adapt them to the nature of the place, of the use, or the species, and by diminutions or additions to qualify the symmetry till it appears rightly adjusted and leaves nothing defective in its appearance." " The mode of the symmetry therefore being first fixed, the alterations are to be made thereon." So that the Greek buildings as we see them were designed as if observed from some particular point of view. This is quite reasonable if they were to be looked at always from one unvarying place ; but as that is not the case, we cannot understand where the advantages of diminution or addition come in.

Mr. James Pennethorne wrote and illustrated an excellent volume in which he applied this principle of Vitruvius to the Parthenon and Erechtheum, observing, as regarded the Caryatidæ Portico of the latter, that it did not appear anything had been done by the architect to modify it after its original conception. Mr. Pennethorne's course of procedure was to use the fact that the eye sees everything as on a curved surface, and not on a flat plane, then, choosing some point on the line of the Panathenaic procession at which the people might be expected to stand still and survey the buildings, he erected a vertical curved surface having the spectator as its centre. On this he projected the horizontal lines of the entablature and stylobate as they existed in the executed building, holding that these lines as projected on the curved surface presented the appearance the architect desired them to have in reality, he, in order to attain this end,

having raised the building to a higher level than that represented in his original drawing. Mr. Pennethorne, deducting the set of heights projected on the curved surface from those of the executed building, put the result on record as the amount of addition made by the architect to his original design.

Diminutions occurred when such parts as the stylobate and cornices would have appeared heavier than as represented in the first conception by reason of their various projections; these would therefore be diminished in order to avoid this. Thus Mr. Pennethorne complied with Vitruvius' canon of additions and diminutions. His work covered the years from 1832 to 1837, and also included a study of the curves of the stylobate and the entasis of the columns, but his book was not published till the year 1878.

Mr. F. C. Penrose took up the latter subject in 1846, and a very carefully illustrated volume by him was published under the auspices of the Society of Dilettanti, showing the system of curvatures, entasis, and the use of subtle geometrical sections in the profiles of the mouldings, establishing the fact that the Greeks paid great attention to optical refinements.

But a subject of more importance than refinements is that of proportion, which concerns the relation that height has to width and depth, both on the whole building and the detailed parts. In ancient theories of proportion it was thought that everything should combine in aliquot parts. If the matter involved was the form of a room, then so many parts were to go to the length and so many to the width and height.

Mr. Pennethorne very interestingly illustrated this in an analysis of the Egyptian tomb of Setho I., discovered by Belzoni, where he found the length of the principal chamber to be 381 inches, which, divided by 18, gave 21.16 inches as a module; 11 of these modules fixed the breadth, and 11 the height.

Vitruvius gives also careful formularies for deciding on dimensions in Grecian Doric architecture, as, for instance, that a tetrastyle front should be divided into $11\frac{1}{2}$ parts, hexastyle into 18, and octastyle $24\frac{1}{4}$, one part in each case being devoted to the diameter of the columns: these divisions also regulating the sizes of the various details; but this system of division and its results are not substantiated by any known example. He also allocates so many diameters to the heights of the Doric and Ionic orders.

But, after all, this or any other arbitrary system does not determine what is required to make a pleasing building. The module used by Mr. Pennethorne might have been with propriety some other dimension; so that we must go further afield to discover a system which will establish a base for right proportion.

Mr. Watkiss Lloyd made a valuable analytical contribution on the proportion of Greek architecture some years ago when he found certain ratios prevailing among relative parts of the Parthenon, such as 4 : 9, 12 : 7, 9 : 10, 6 : 11. From these, which it must be remembered are quite arbitrary figures and not founded on any principle—for the 4 : 9 might as well have been 3 : 9—it is possible to build up the Parthenon façade.

For example, the diameter of the column may be determined by dividing the intercolumniation 14.09 from axis to axis into 9 parts and giving 4 of these to the column, so using the formula 9 : 4.

But there are two weak links in the chain of reasoning, inasmuch as before the widths of intercolumniations could be determined, the width of the triglyph had to be fixed and deducted from the length of the stylobate line, which then, divided by 7, gave the amount of intercolumniation; and, further, the height of stylobate has to be assumed, and none of the ratios provides for it.

Mr. Lloyd also mentioned that the breadth of a column abacus should bear either a rectangular proportion to the length of the top step of the stylobate or to both. The Theseum abacus is one-fifth the height of the column and one-twelfth of the top step. At Bassae the

abacus is one-fifth of the height of the column, but it is not commensurate with the top step. Mr. Pennethorne had anticipated this use of the abacus by finding that if the Parthenon abacus was divided in its breadth into 15 parts, the upper diameter of the column contains 11 of these parts, and the lower 14. And he found that if the N. Erechtheum capital was divided into 14 parts across the volutes, the upper diameter had 10 and the lower 12 of them ; but there does not appear to have been any fixed number for division, the Theseum taking 10, the side propylæum 25, and so forth.

But none of these coincidences answers our question, What forms good proportion, and how may it be attained ?

Is it to be found bearing any relation to the diatonic chords of music ? There are hints in ancient literature that Greek architecture was designed to have some such connection, and Mr. D. R. Hay followed out that theory with great ingenuity, fixing on certain angles as representing particular notes which form musical chords, assuming that if these were combined in a building, harmony would result. He selected divisions which were aliquot parts of 90°, and these were $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, corresponding with the angles of 45°, 30°, 22½°, 18°, 15° and 12$\frac{6}{7}$°. From these he chose three—viz. 30°, 22½° and 18°, applying them with apparent success to the Parthenon façade.

Professor Kelland, who occupied the mathematical chair in Edinburgh University in Mr. Hay's time, took up the theory and supported it by stating as its justification that a figure is pleasing to the eye in the same degree as its fundamental angle bears to the other angles the same proportion that the vibrations bear to one another in a common chord of music. But of course the difficulty lies in proving any accord of particular angles with notes that make chords in music ; and till this is done, the analogy is incomplete.

Having occasion to give a lecture in the beginning of this year on " How to Know Good Architecture," and the subject of proportion necessarily presenting itself for consideration, I applied Mr. Hay's system of angles to a large drawing of the Parthenon, only to find that his three angles of 30°, 22½° and 18° were not coincident with the points they were represented as touching in the small drawing which appeared in his interesting work published in the year 1851—the lines when they reached the points being 15 inches too low in each case. It is only right, however, to remark that this is what would happen if Mr. Pennethorne's optical theory is correct, though not to a greater extent than six inches : Mr. Pennethorne's figures of correction in height being 5.55 inches for the columns, and for the whole height 4.85 inches.

Fresh light on the subject of proportion is afforded in a letter by Mr. John Harrington, written on May 22, 1693, to Sir Isaac Newton, to which Newton replied in a letter which is worth quoting in full :—

Sir,—By the hands of your friend I was favoured with your demonstration of the harmonic ratios from the ordinance of the 47th of Euclid. I see you have reduced from this wonderful proposition the inharmonies as well as the coincidences of agreement all resulting from the given lines 3, 4, 5. You observe that the multiples hereof furnish those ratios that afford pleasure to the eye in architectural design ; and that the idea of beauty in surveying objects arises from their respective approximations to the simple constructions : and that the pleasure is more or less as the approaches are nearer to the harmonic ratios. I believe you are right ; portions of circles are more or less agreeable as the segments give the idea of the perfect figure from which they are derived. Your examination of the sides of polygons with rectangles certainly quadrates with the harmonic ratios. In fine I am inclined to believe some general laws of the Creator prevailed with respect to the agreeable or unpleasing affections of all our senses ; at least the supposition does not derogate from the wisdom and power of God, and seems highly consonant to the simplicity of the microcosm in general.—Your humble servant,

Isaac Newton.

30th May 1693.

Newton in this reply makes a suggestion which no one seems to have taken up, viz. : that where the ratios 3, 4, 5 prevail, the proportions will be good.

There are two ways of applying these ratios, first to the *areas* which the angles 3, 4 and 5 or their equivalents 30°, 22½° and 18° enclose ; or second, to the three intervals of space which are left between the ends of these lines when circumscribed by an arc, and the vertical line which is tangential with that arc.

In the first case they do not apply, for if we examine the Parthenon and take the three areas enclosed by these lines, viz. the columns, the entablature and the pediment, the superficies of the columnar space which may be accepted as equivalent to 5, far exceeds the combined superficies of the entablature and pediment which may be considered as equal to the other two figures of 4 and 3. In the columnar area the superficies is 3,400 feet, the other two combined amount to 2,450 feet, so this cannot be the correct application of it.

Neither is the second method of any service, as the intervals of space formed by the three angles are respectively 6 feet, 9 feet and 18 feet, in the case of the Parthenon, and the remaining thirty temples which are before us for consideration are also out of count as regards both methods.

But although the first of Newton's suggestions fails there is a second which will give us a clue towards a successful theory, and it is to be found in these words in a later part of his letter, "Your examination of the sides of polygons with rectangles certainly quadrates with the harmonic ratios." We need not accept this hint in its full bearing, or consider the intricacies of calculation which that acceptance would involve, but simply confine ourselves to the words "sides of polygons" and work on them as a basis. The forms which the sides of polygons give us are the triangle, pentagon, hexagon and octagon ; the triangle has affinity with the tetrastyle form of Greek front, the pentagon by doubling may be considered as related to the decastyle, the hexagon to the hexastyle, and by doubling to the do-decastyle, and the octagon to the octastyle ; but as there are only two examples of the ten columned and but one of the twelve columned frontages under consideration, we may discard them and their geometric analogues from our notice ; and besides, they are covered by the hexagon and octagon, to which forms we propose to confine our attention.

In this way I submit we shall answer the question, How did the Greeks design their temples ? and what is the secret of the good proportion to be found therein ? The hexagon then, when we resolve it into all its possible angles, gives us 60° and 30°, the octagon furnishes 67½°, 45° and 22½°. Let us see what we can do with them.

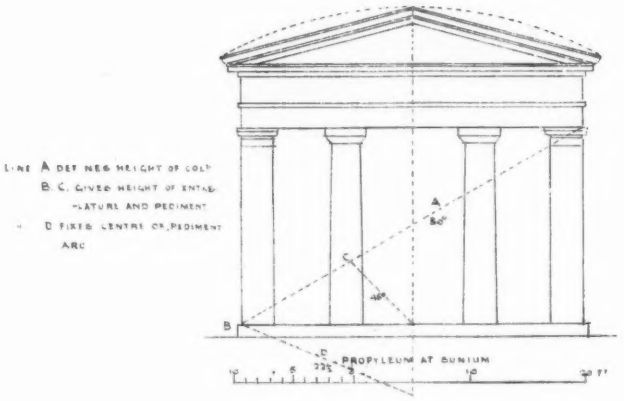
Beginning with the Parthenon, we find that it and all the other temples are constructible by means of the five angles above enumerated.

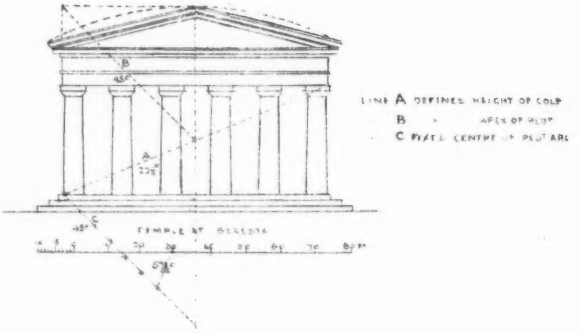
In the instance of the Parthenon an angle of 60° produced downwards from the top of the stylobate to a point at the centre of the façade, and from that point an angle of 67½° carried upwards, will define the columns to the underside of the abacus ; and then an angle of 30° from the same stylobate point downwards to the centre, and from thence of 60° upwards, will give the level of the top of the pediment ; the slope of the pediment is outlined by an arc which has for its radius the diagonal of the whole front.

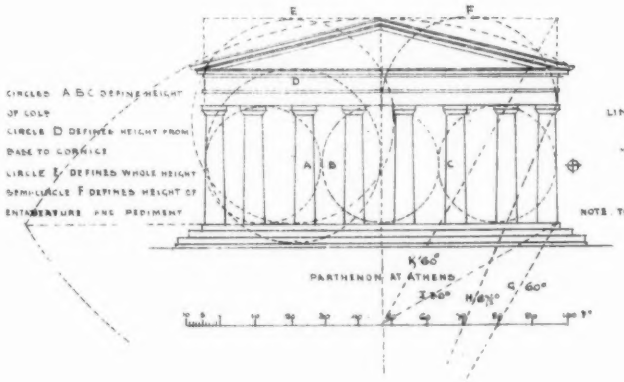
The Theseum surpasses this process in simplicity by only requiring one diagonal of 22½° for its columns, and one of 30° for the entablature and pediment. Then we find the columnar façades in nine cases form rectangles of which the diagonals are either 30° or 22½°—three being of 30° (two Ionic, one Doric) and six of 22½° (Doric).

Other examples of our series are formed either by lines which go upwards from a given centre, as do those of the Parthenon ; or by radii and arcs for which the centres are found by angles starting from the top of the stylobate. Of the former, four in number, we may take the instance of Apollo Didymaeus ; and of the latter, which are nine in number, the temple of Sunium, which has an arc whose radius is formed by intersecting an angle of 22½° with one of

No I

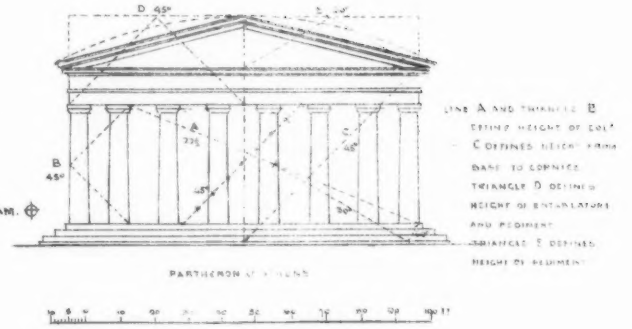


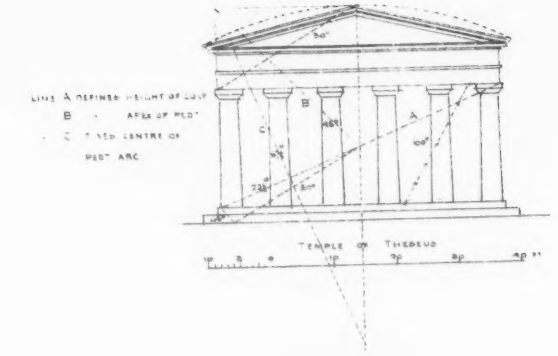


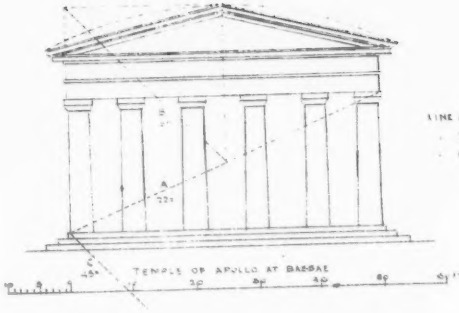


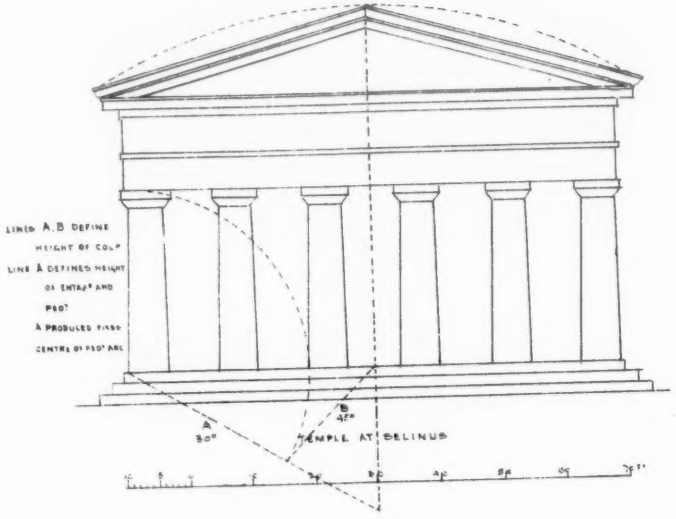
LINES G, H DEFINE HEIGHT OF COLP
" I, K FIX LEVEL OF PEDT APEX

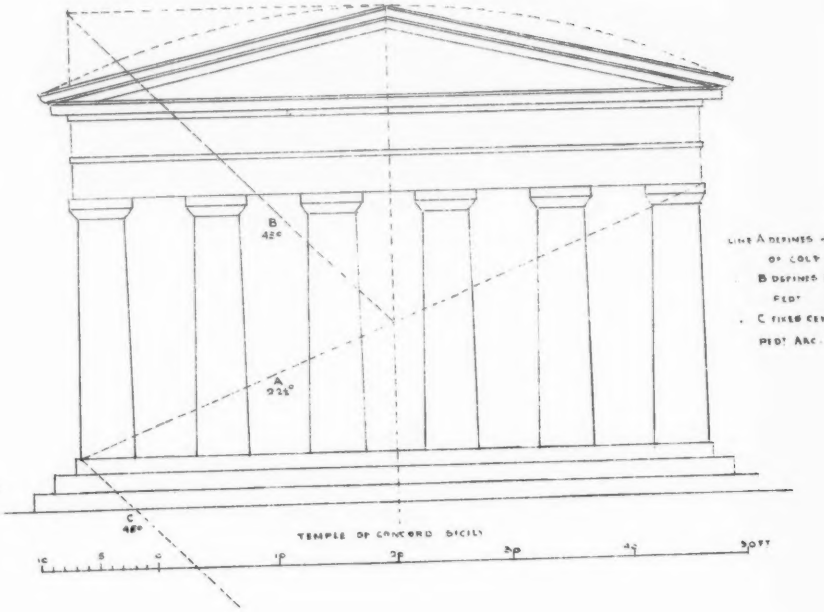
NOTE. THE ABOVE REFERS TO DIAGRAM.



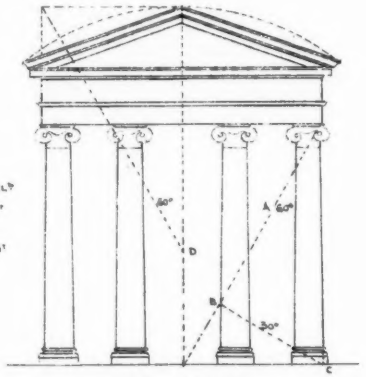

LINE A DEFINES HEIGHT OF COLP
B " AREA OF PED?
C FIXED CENTRE OF PED? ARC
TEMPLE OF THESEUS


LINE A DEFINES HEIGHT OF COLP
B " AREA OF PED?
C PRODUCED FIXES CENTRE OF PED? CURVE
TEMPLE OF APOLLO AT BARBAE


LINES A.B DEFINE HEIGHT OF COLP
LINE A DEFINES HEIGHT OF ENTAB? AND PED?
A PRODUCED FIXES CENTRE OF PED? ARC
TEMPLE AT SELINUS

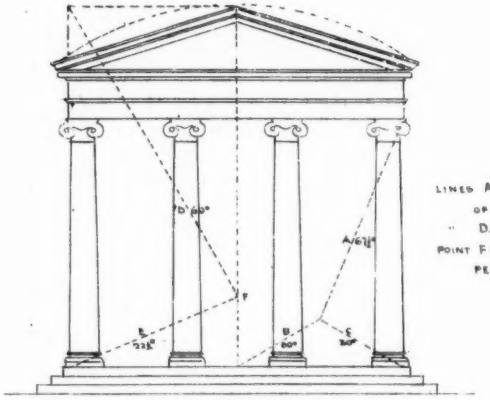

LINE A DEFINES HEIGHT OF COLP
B DEFINES AREA OF PED?
C FIXES CENTRE OF PED? ARC
TEMPLE OF CONCORD SICILY

LINE A DEFINES HEIGHT OF COL^S
" B C GIVES HEIGHT OF PED^T AND ENTABLATURE
POINT D GIVES CENTRE FOR PED^T ARC

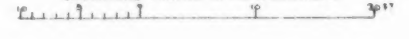


TEMPLE AT CNIDUS

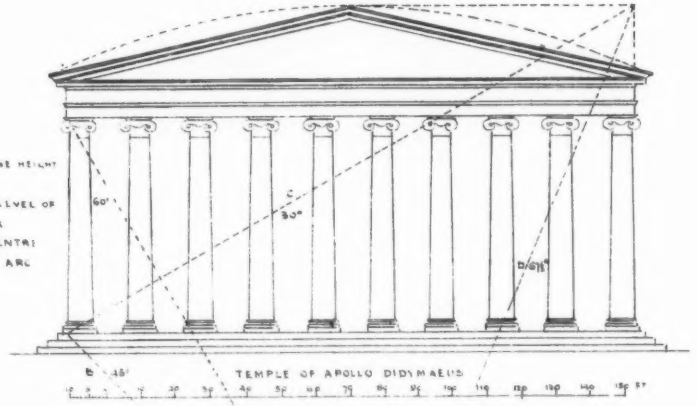
LINES A B C DEFINE HEIGHT OF COL^S
" D.E FIX APEX OF PED^T
POINT F GIVES CENTRE FOR PED^T ARC.



TEMPLE OF NIKÈ APTEROS

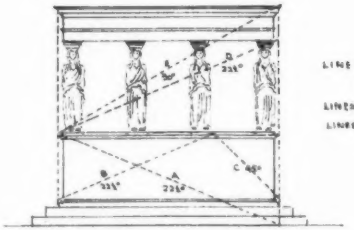


LINES A B DEFINE HEIGHT OF COL^S
LINE C FIXES LEVEL OF PED^T APEX
D GIVE CENTRE FOR PED^T ARC



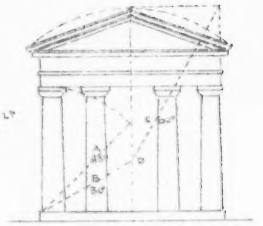
TEMPLE OF APOLLO DIDYMAEUS

LINE A DEFINES HEIGHT OF PODIUM AND STYLOBATE
LINES B.C. DEFINE HEIGHT OF PODIUM
LINES D E DEFINE " OF CARYATIDAE AND CORNICE



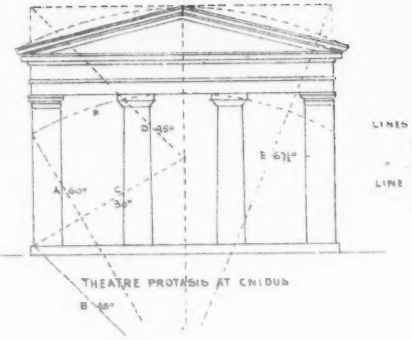
CARYATIDAE PORTICO AT THE ERECHTHEUM

LINE A DEFINES HEIGHT OF COL^{n}
LINED B C FIX LEVEL OF PED^{T} APEX
POINT D GIVES CENTRE FOR PED^{T} ARC.



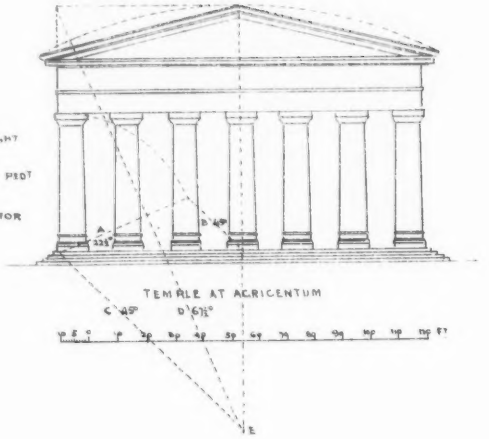
TEMPLE AT ATHENS

LINES A B AND ARC F DEFINE HEIGHT OF COL^{n}
" C D FIX LEVEL OF PED^{T} APEX
LINE E GIVES CENTRE FOR PED^{T} ARC.



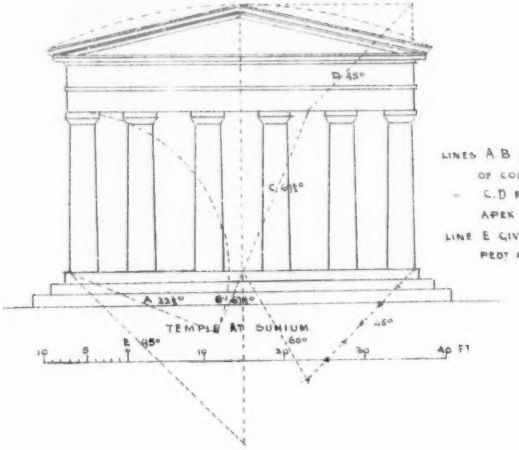
THEATRE PROTASIS AT CNIDUS

LINES A B DEFINE HEIGHT OF COL^{n}
" C D FIX LEVEL OF PED^{T} APEX
POINT E GIVES CENTRE FOR PED^{T} ARC.



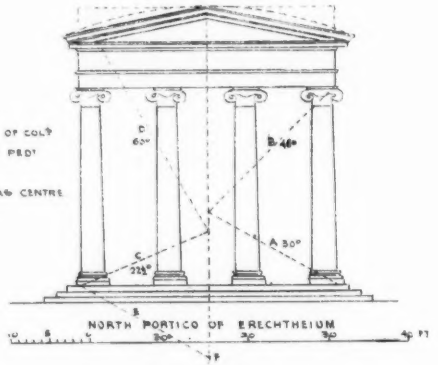
TEMPLE AT AGRICENTUM

LINES A B DEFINE HEIGHT OF COL^{n}
" C D FIX LEVEL OF PED^{T} APEX
LINE E GIVES CENTRE FOR PED^{T} ARC.



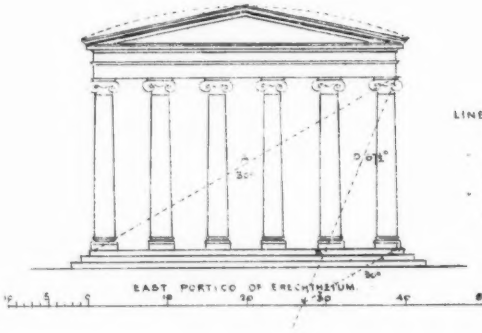
TEMPLE AT SUNIUM

LINES A B DEFINE HEIGHT OF COL^S
C.D. FIX LEVEL OF PED^T APEX
LINE E GIVES POINT F AS CENTRE OF PED^T ARC.



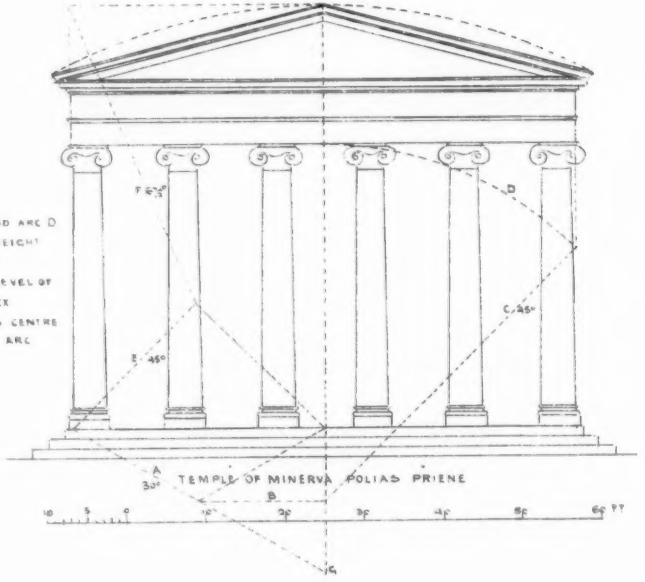
NORTH PORTICO OF ERECHTHEIUM

LINE A DEFINES HEIGHT OF COL^S
B.C GIVES HEIGHT OF PED^T
D GIVES CENTRE OF PED^T ARC.



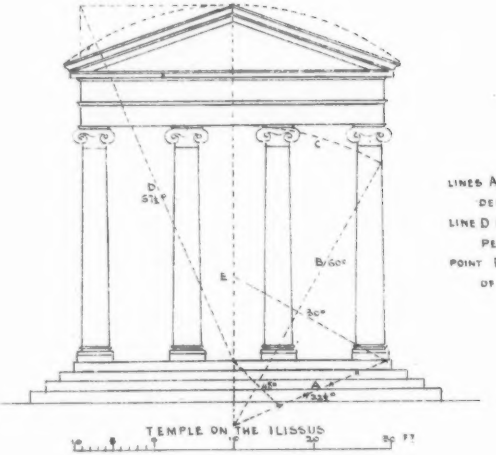
EAST PORTICO OF ERECHTHEIUM

LINES A B, C AND ARC D DEFINE HEIGHT OF COL^S
E F FIX LEVEL OF PED^T APEX
POINT G GIVES CENTRE OF PED^T ARC

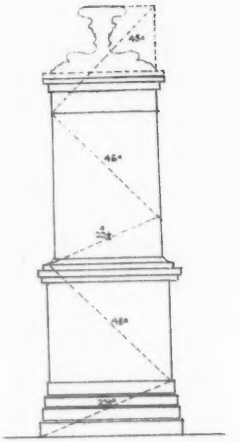


TEMPLE OF MINERVA POLIAS PRIENE

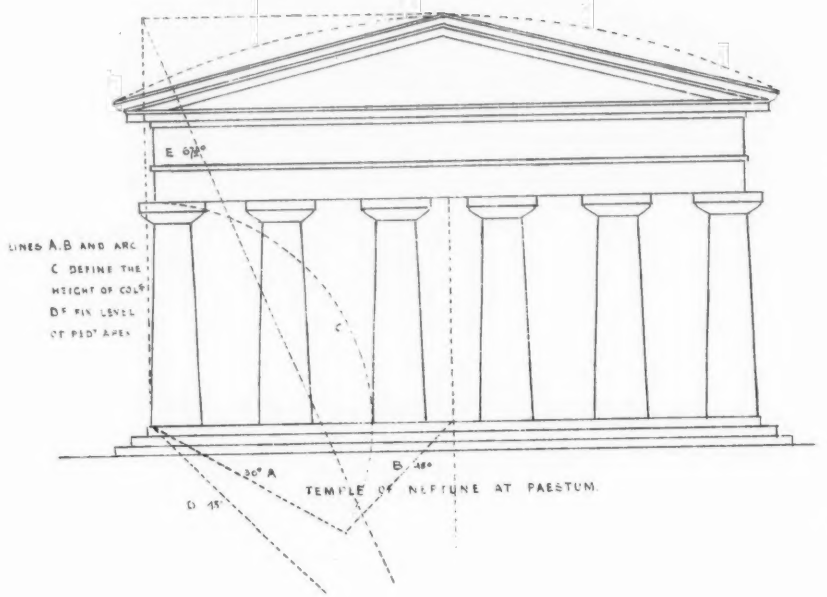
LINES A B AND ARC C DEFINE HEIGHT OF COL^S
LINE D FIXES LEVEL OF PED^T APEX
POINT E GIVES CENTRE OF PED^T ARC.



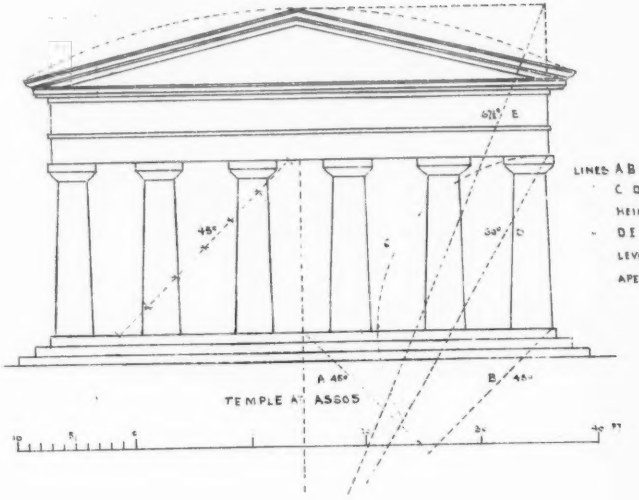
TEMPLE ON THE ILISSUS



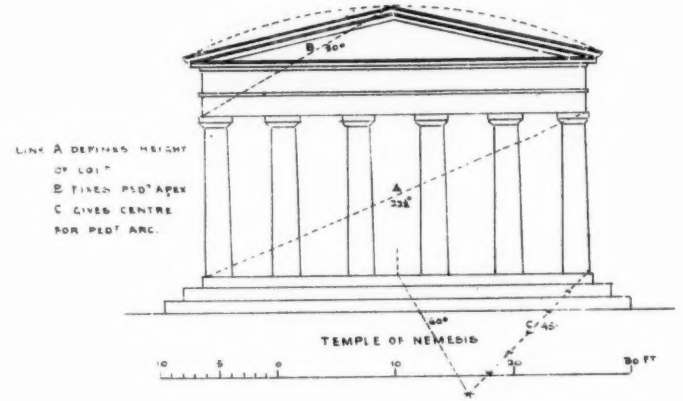
LYSICRATES MONUMENT

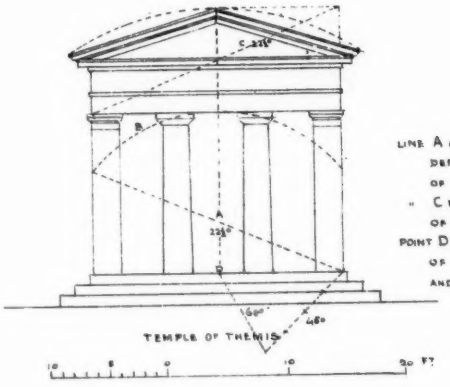


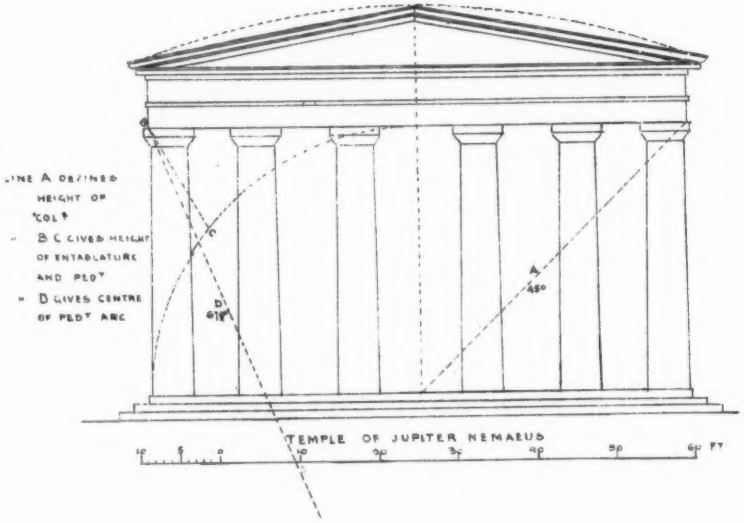
TEMPLE OF NEPTUNE AT PAESTUM.

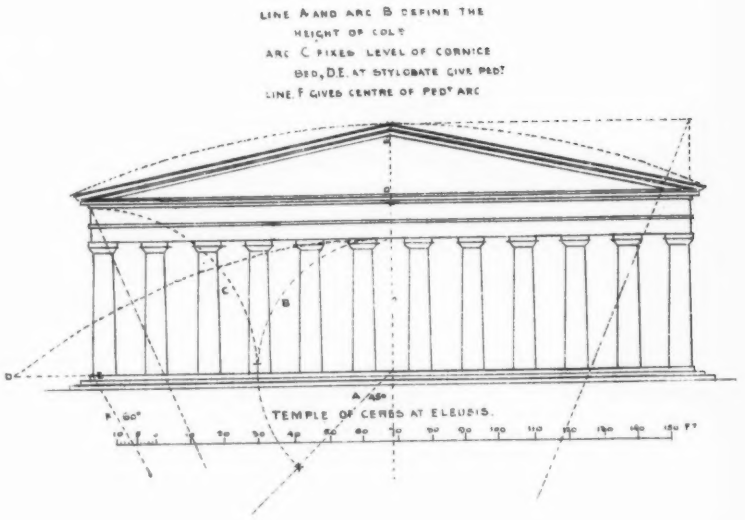


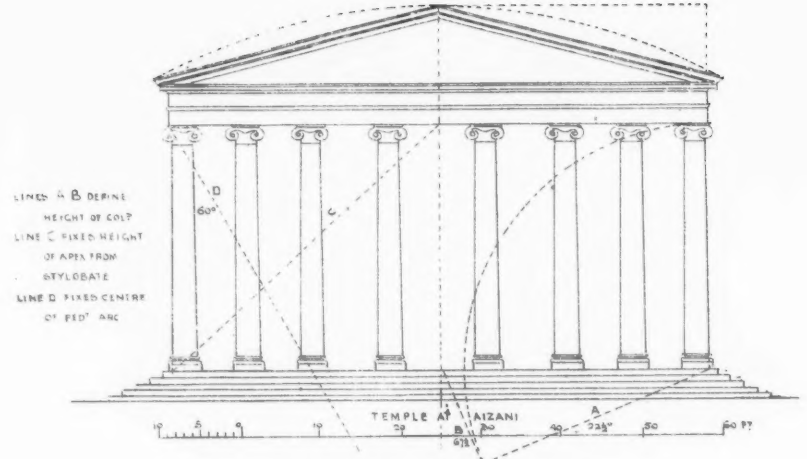
TEMPLE AT ASSOS

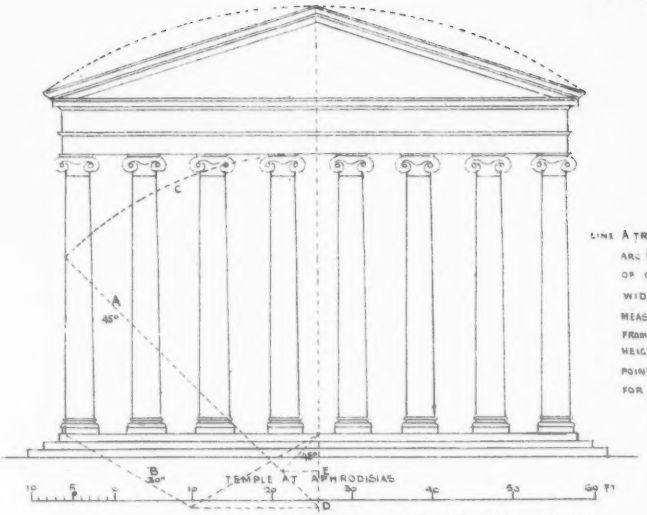

LINE A DEFINES HEIGHT OF COL.
B FIXES PED. APEX
C GIVES CENTRE FOR PED. ARC.
B 30°
A 22½°
C 45°
60°
TEMPLE OF NEMESIS
10 5 0 10 20 30 FT

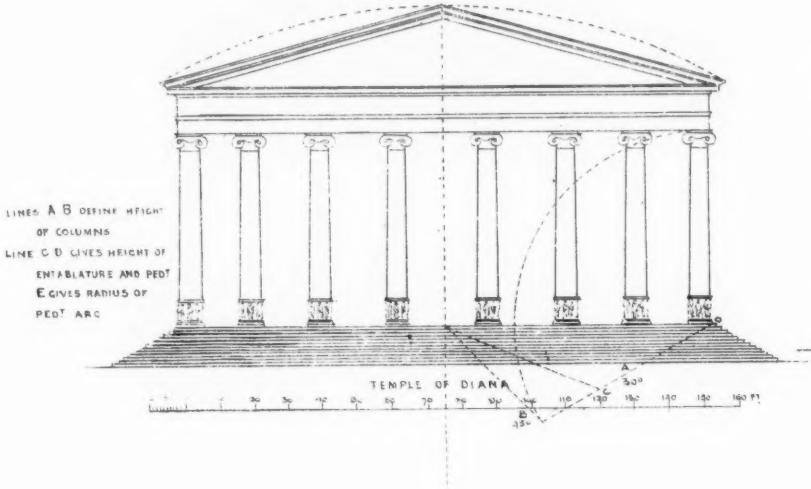

LINE A AND ARC B DEFINE HEIGHT OF COL.
" C FIXES LEVEL OF PED. APEX
POINT D GIVES CENTRE OF PED. ARC AND ARC B
C 22½°
B
A 22½°
60°
45°
TEMPLE OF THEMIS
10 5 0 10 30 FT

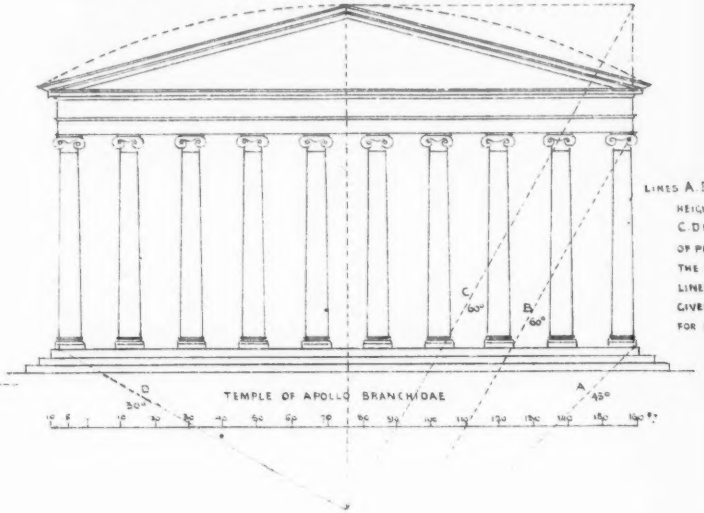

LINE A DEFINES HEIGHT OF COL.
" B C GIVES HEIGHT OF ENTABLATURE AND PED.
" D GIVES CENTRE OF PED. ARC
C
D 61½°
A 45°
TEMPLE OF JUPITER NEMAEUS
10 5 0 10 20 30 40 50 60 FT

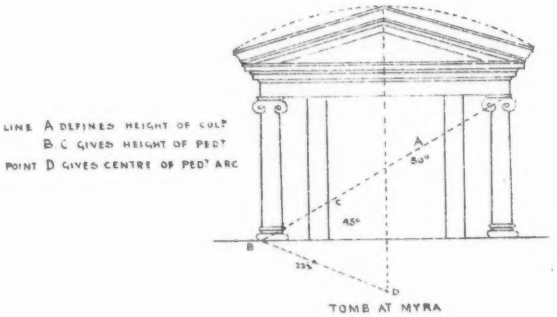

LINE A AND ARC B DEFINE THE HEIGHT OF COL.
ARC C FIXED LEVEL OF CORNICE
BED, D.E. AT STYLOBATE GIVE PED.
LINE F GIVES CENTRE OF PED. ARC
C
B
D
A 45°
F 60°
TEMPLE OF CERES AT ELEUSIS.



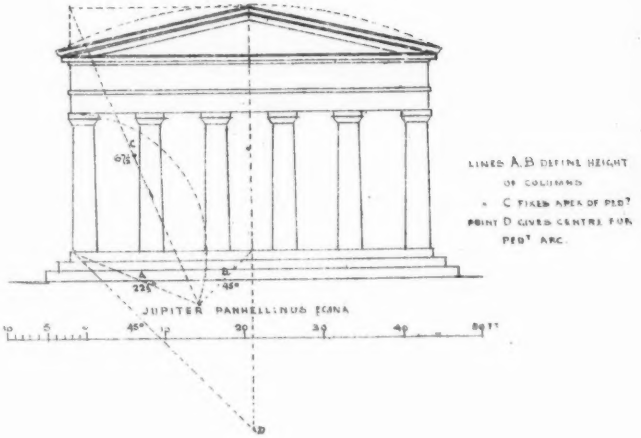


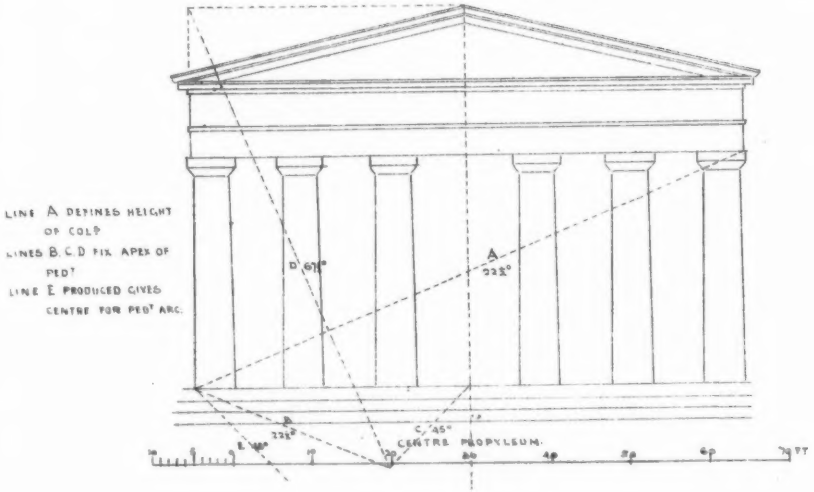


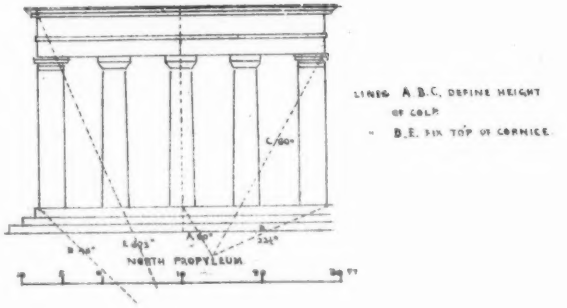



LINE A DEFINES HEIGHT OF COL?
B C GIVES HEIGHT OF PED?
POINT D GIVES CENTRE OF PED? ARC
A
30°
C
45°
B
22½°
D

TOMB AT MYRA


LINES A,B DEFINE HEIGHT OF COLUMNS
C FIXES APEX OF PED?
POINT D GIVES CENTRE FOR PED? ARC
C 67½°
A 22½°
B 45°
D
JUPITER PANHELLINUS EGINA


LINE A DEFINES HEIGHT OF COL?
LINES B, C, D FIX APEX OF PED?
LINE E PRODUCED GIVES CENTRE FOR PED? ARC
D 67½°
A 22½°
B 22½°
C 45°
CENTRE PROPYLEUM.


LINES A B C, DEFINE HEIGHT OF COL?
B E, FIX TOP OF CORNICE
C 60°
B 45°
A 30°
NORTH PROPYLEUM

67½° passing downwards from the stylobate. Of the remaining ten, six are formed by combined arcs and straight lines forming angles of 60°, 45° and 22½°.

As to the mode of determining the heights of the entablature and pediment, some have been fixed by the very simple method of running up an angle of 45° from the middle of the column diagonal as at the Theseum, and three other temples ; or, as in the case of the north portico of the Erechtheum by passing up an angle of 22½° to the centre, and from that upwards another of 60° ; this being done defines the height of the pediment and the entablature : the only remaining step is to find the centre of the pedimental arc, the radius of which, as a rule, is equal to the length of the main diagonal ; but sometimes a special centre has to be found for it, as in the instance of the temple on the Ilissus, where an angle of 30° from the stylobate to the middle of the front gives that centre.

The diameters of the columns, too, are fixed, as in the Parthenon, by passing a line at an angle of 45° between the stylobate and the soffit of the entablature, and dividing it into eight parts as equivalent to the number of columns ; or, as in Theseus, using an angle of 60° divided into six parts as equal to the number of its columns.

In other cases angles of 45° or 22½° drawn downwards, intersected by other angles of the series and divided accordingly, give the diameter, as at Sunium, Nemesis, Themis, Segesta Assos and the east portico of the Erechtheum.

The height of the Parthenon stylobate is found by the intersection of a 30° line from the centre of the 22½° diagonal intersected at the foot by a line of 60°, and of Theseus by a similar intersection with an angle of 45° at the foot instead of 60°, and no doubt the other stylobates could be fixed by a corresponding method.

Then the slopes of the pediments are determined with equal facility by outlining them with arcs of circles. In the instances of both the Parthenon and the Theseum the radii of their arcs correspond with the diagonals of the entire fronts, and this is the case with the majority of the other temples we are investigating. The hitherto unconsidered angle of 15° is applicable to the slopes of Priene, Selinus, Aisani, Diana and Branchidæ.

If the above analysis be correct, then it would appear that the architect of the period, who had very little variety of form to work upon, must in his endeavour to secure diversity have used varying angles and methods.

If his building was to be on level ground like the Theseum he would find an angle of 22½° sufficient for the columnar, and 30° for the upper part ; but if, like Sunium, it stood on a hill, he would employ angles which gave these parts greater elevation, and no doubt the site had much to do in determining which of the several available systems was to be followed.

We conclude with a reference to the two representations of the Parthenon : one showing the filling in with straight-lined geometrical figures, and the other of curvilinear figures. All the other façades are resolvable into straight-lined forms showing they are founded upon a geometrical basis, though this does not guarantee agreeable proportion in every case, as may be seen from the examples of the Doric at Selinus and the Ionic at Aphrodisias.

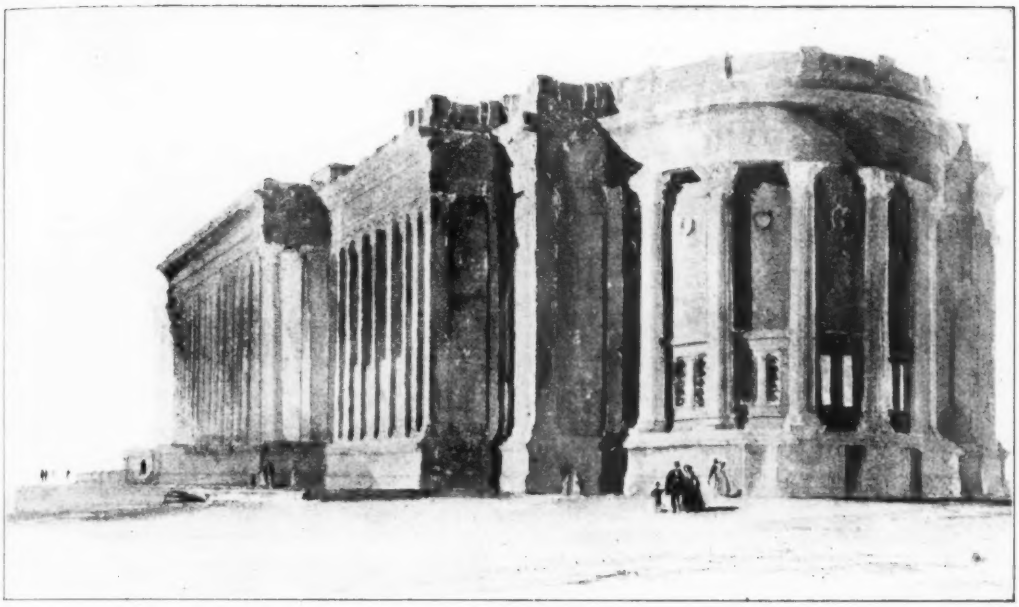
I hope you have not thought that I invited you to spend an evening in listening to a dilettante disquisition on classic architecture without seeking to draw some lessons from it for present use. We will not be called upon to design Greek temples, nor would we care to do so ; but it is only due to the memory of the designers to realise that their buildings have the qualities of excellent proportion and of concern for varying forms of site—considerations we shall never be able to do without. There is special need to recognise this at the present time when in so many modern phases of architecture some are more inclined to the quaint and picturesque than the graceful and well-proportioned. There is a place for both as meeting the varying moods of the human mind, and we shall always have them with us, only instead of copying implicitly what

has been done in the past we ought to have some regard to evolution and progress in architecture and aim at doing better than the old-time work, and this is quite possible without ignoring the fundamental principles on which that work was done—proportion among the rest, for the observance of which we owe the Greeks a debt of gratitude, and this we may best discharge by recognising it as an essential factor in modern design although we may not consider it expedient to copy the Greek forms in which it is found.

All modern work should be regulated by some system or method; attention to this would help towards successful acoustics in public buildings. Of this we have an excellent illustration in the Free Trade Hall of Manchester, where the geometrical laws which we have been trying to elicit from Greek architecture find a place in the sections of that building so famous for great oratory and fine music. Its longitudinal section is defined by an angle of $22\frac{1}{2}°$, and its transverse by angles of $45°$ and $67\frac{1}{2}°$ combined in the same manner as those of the temple of Apollo Didymaeus.

I should add that the Greek buildings chosen for examination are situated in Greece, Asia Minor, and Sicily, and although in many cases incomplete, the columnar façades can always be determined by the columns standing erect *in situ* with so much of the entablature; or if fallen, the lengths of the columns are usually discoverable and also fragments of the entablatures. The pediments are largely conjectural, and the authorities from whose works the drawings have been made are Stuart and Revett, the publications of the Society of Dilettanti, including those of Mr. Penrose, of Mr. Pennethorne on The Geometry and Optics of Ancient Architecture, and of Messrs. Koldewey and Puchstein.

PAESTUM: TEMPLE OF NEPTUNE.



ST. GEORGE'S HALL, LIVERPOOL.
From an original sketch by Elmes in the Institute Collection.

THE INSTITUTE COLLECTIONS:

EXHIBITION OF SOME PAST MASTERS IN ARCHITECTURE.

By WALTER MILLARD [*A.*]

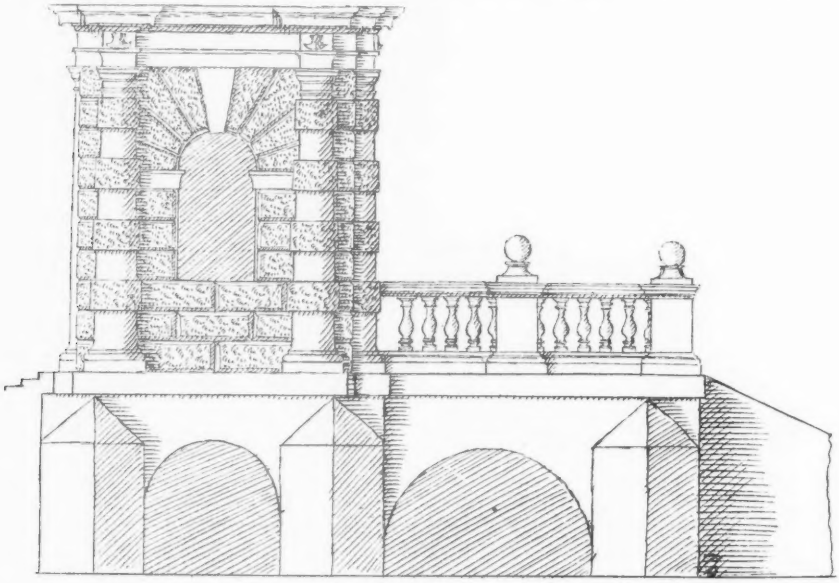
BY a fortunate inspiration, and at a given word, the drawers and cupboards and the portfolios of the Institute Library were made to yield up some of their precious contents for the entertainment and edification of the President's guests on the occasion of his "At Home" on the evening of Monday, 30th May. Mr. Dircks, in making a judicious selection from the rich stores in his keeping as Librarian, produced a whole series of architects' own drawings, works ranging from Inigo Jones down to men who have been personally known to many of us. Then, with thoughtful foresight and thoroughness, he took care to provide us with a handy catalogue, to serve at once as an aid to our appreciation of the works on view and to stand for a record of the evening's show. This catalogue is entitled *Selection of Original Drawings from the R.I.B.A. Collection*; and a note inside the cover states that the exhibition "is confined to original works which possess either an historic or pictorial interest." These sheets of varied size and hue, stained and faded and creased, possess furthermore a living, personal interest for us architects of to-day; they speak of the kinship between us and the men who have gone before.

Beginning with Inigo Jones, whose portrait in pen-and-ink, presumably by his own hand, looks out at us expressively from its frame, we at once encounter his signature on a "Design for gateway." Specially interesting is his sheet of drawings bearing the inscription, "Ground plat and upright of ye watergate Yorke house 1641," showing how this structure, which to-day we see rising out of an apparent depression in the ground, was designed, and doubtless built, to be borne up over the water on a vaulted basement-stage with a broad flight of nineteen steps leading down from the balustraded terrace, facing the river, planned out in front of the gateway itself.

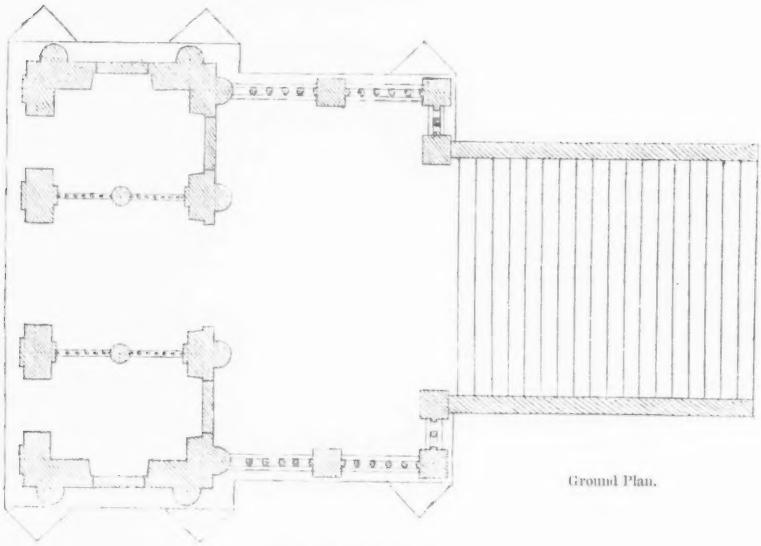
A very freely handled sketch of Inigo Jones's for a rather ornate mantelpiece, on which is written, "for Greenwich," contrasts effectively with four careful scale-drawings, with dimensions figured on, inscribed respectively, "For the withdrawing room to the Bedchamber in the lower story at Drayton, 1653. John Webb"; "For ye Bedchamber in ye ground story at Drayton. 1653. John Webb"; "Sr George Pratt his guest chamber"; "ffor the chimney peece in the withdrawing room at Northumberland House. 1660.

John Webb." In these elegant studies for mantelpieces Webb shows himself a not unworthy follower of his master, but lacking his fire and force. That scrap of indirect evidence, by the way, on Jones's sketch, in his own handwriting, might have weighed for something with Fergusson when he wrote: "The design of the river façade of Greenwich Hospital is almost always said to be his, without a shadow of documentary evidence."

An elevation of a façade at Vicenza of the Palazzo Chiericati, by Palladio, of two Orders in height, reminds one of so much one sees that has



Side Elevation.



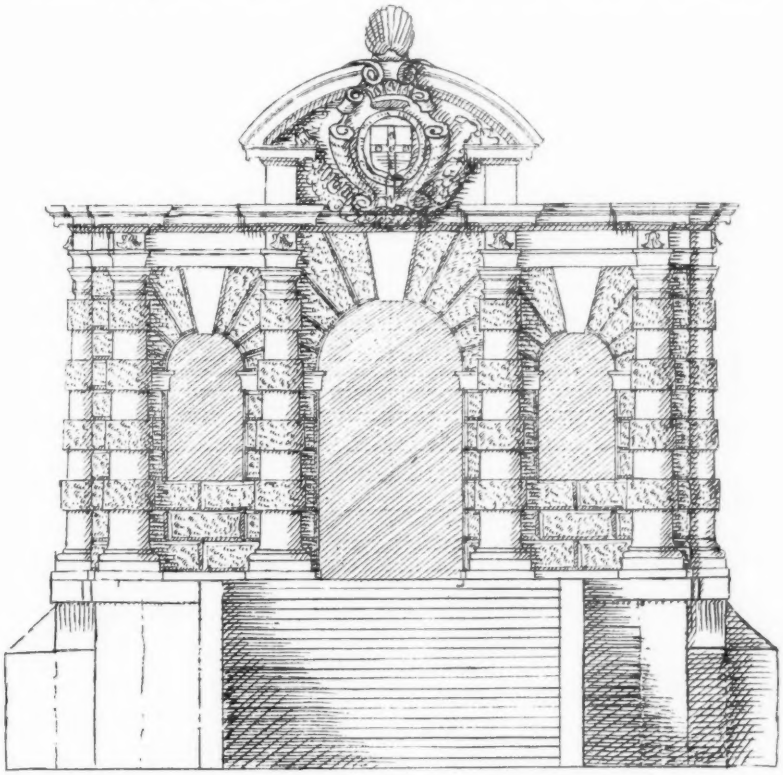
Ground Plan.

THE WATER GATE, YORK HOUSE.
From the original drawings by Inigo Jones in the Institute Collection.

been done since. A busy-looking sheet of drawing, full of sprawling figures interspersed with written notes about them, is inscribed by Professor Donaldson, "a good illustration of the treatment of Sir James Thornhill of a staircase after the Italian manner"; much as might be said of any of us, fancying ourselves designing and drawing after—say—the French or some such grand manner, rather than trying to do the best we happen to be capable of without aping other manners.

by the same hand, is similarly figured-up and carefully detailed, with a good deal of the carved ornament sketched in.

On a working drawing for a timber-framed cupola, shown in elevation and section with plans at various levels, Professor Donaldson, the donor, has written: "This appears to me to be an original drawing of Sir Christopher Wren's. The handwriting—the style of drawing—the prospective language of the marginal note below, indicates

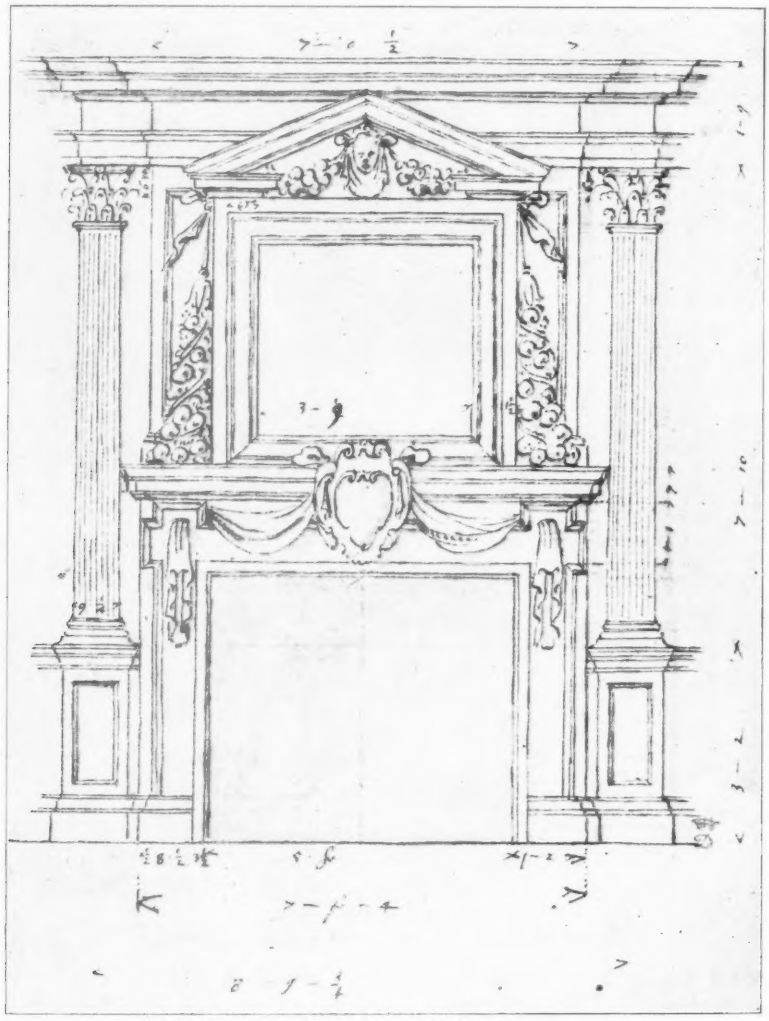


THE WATER GATE, YORK HOUSE: RIVER FRONT.
From the original drawing by Inigo Jones in the Institute Collection.

On the outer margin of a mounted drawing, showing, among other things, half the façade of a palace, is written, "the original drawing of Scamozzi papa Gulio near Rome." This is clearly an architectural student's measured-drawing made from the actual building, since it has the leading dimensions carefully figured on, and lettered sketches of the details are given alongside, just as a travelling-student in architecture would do. This student economised paper by filling the sheet on both sides with a variety of subjects. The subject of another sheet of measured work, evidently

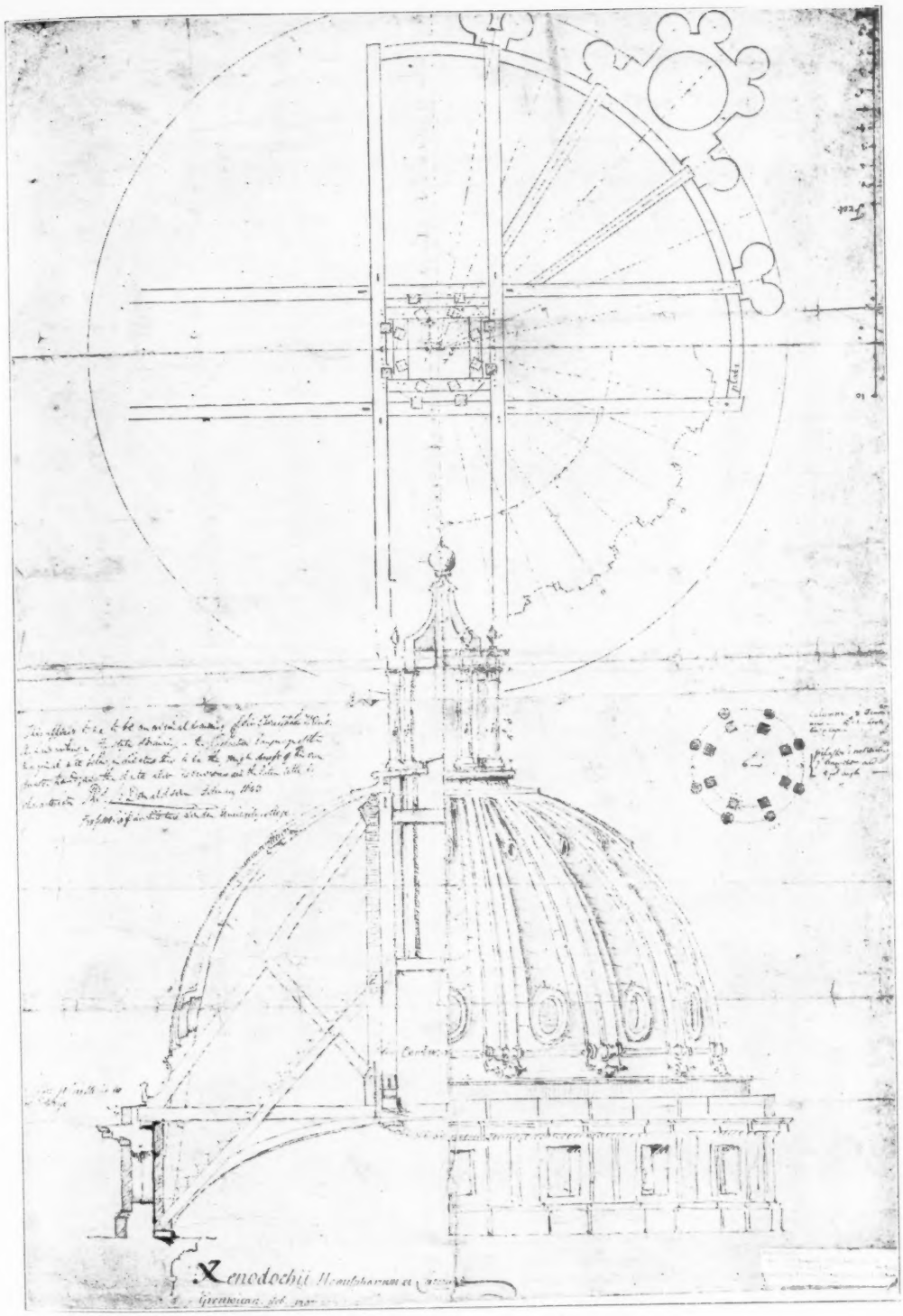
this to be the rough draft of his own master hand; and the date also is curious and the Latin title is characteristic." The marginal note referred to runs: "The plinth is to be a drip"—meaning a gutter, apparently—whilst the title reads: "Xenodochii Hemispherium et Laterna. Grenwican Feb. 1702." However closely this drawing may answer to the Professor's description of it, as a rough draft, it seems to be nearly all that would be needed for the execution of the work—by workmen who knew their trade. It is noticeable that, although the scantlings are not figured on the

clearly drawn timbers, yet dimensions are carefully written to the lantern, giving heights and diameters of columns, &c. The designer seems to have deemed it a matter of consequence to get the a Section, entitled "Sir Christopher Wren's . Design . for . S. . Paul's . Cathedral . measured from the model and drawn at one eighth of its scale. E. C. Sayer." These drawings are dated respectively

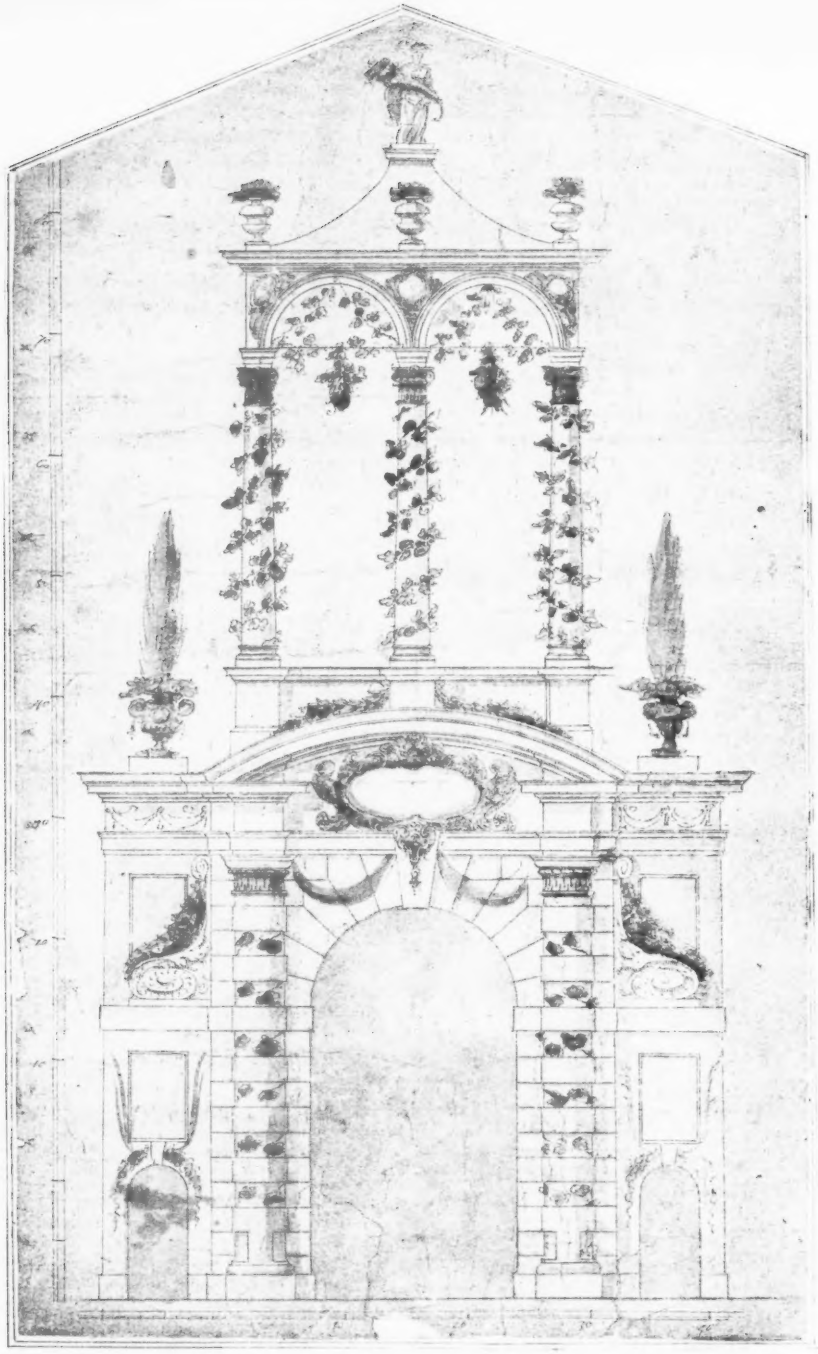


DESIGN FOR MANTELPIECE BY JOHN WEBB, INSCRIBED "SR GEORGE PRATT HIS GUEST CHAMBER."
From the original drawing (dated 1660) by John Webb in the Institute Collection.

shapes and proportions of this crowning feature just to his mind. The carpenters could be trusted to frame their roof from the scale-drawing; what they were not to be entrusted with, without exact sizes, was the architecture. A greater work of Wren's comes next, illustrated by an Elevation and "1846" and "1847." They represent, of course, the earlier design, that was not carried out. One may observe that, according to this representation, the scheme provided for top-lighting of the domed compartments surrounding the main, central area. The unity of effect to be obtained by top-lighting



GREENWICH HOSPITAL: DOME, HALF-SECTIONAL ELEVATION, AND PLAN.
From a drawing in the Institute Collection, attributed by Donaldson to Sir Christopher Wren.



TRIUMPHAL ARCH ERECTED NEAR WHITEFRIARS, FLEET STREET, FOR THE ENTRY OF KING CHARLES II. INTO LONDON ON HIS RESTORATION 22ND APRIL 1661.

From the original drawing in the Institute Collection.

alone would here have been missed, owing to low cross-lighting from the side windows shown. More than a century later the complete effect of top-lighting in a large church of classical design was well exemplified in the Madeleine, Paris, where no disturbing side-lights weaken the impressiveness of the architecture seen under illumination only from above.

Four drawings, by an unknown hand, "of Triumphal arches erected for the entry of King Charles II. into London on his restoration, April 22, 1661" represent respectively: the arch in Leadenhall Street, commemorating "Monarchy Restored"; another near the Royal Exchange, commemorating "Loyalty Restored"; one near Wood Street, Cheapside, erected as a "Temple of Concord"; and one near Whitefriars, in Fleet Street, illustrating a "Garden of Plenty." It is in this last that the spirit of the occasion seems to have been best caught and rendered. Put into perspective, this design would surely be a fascinating one for its purpose. All four show a mastery of architectural composition and skill in its presentment. The question of the authorship of these designs is one of standing interest. Were they by Webb, or could it have been young Wren who produced them?

In a frame of skilfully tinted drawings, for parts of Somerset House, by Sir Wm. Chambers, we were shown architecture thoughtfully designed and detailed, with exact dimensions figured, evidently in view of the execution of the work. Alongside these hung another tinted drawing, no less deftly executed, headed, "Façade Principalle du Pavillon de Bains, Erigée à Paris a L'Hotel de Brancas, Pour Mr. le Comte de Lauraguais en l'anné 1768. sur les dessins de Berlanger architecte des menûs: Plaisirs du Roy." At the foot is this note: "Dediè a monsieur Williams Chambers: par son tres humble serviteur Belanger"; an early instance of *l'entente cordiale*!

Drawings by Sir G. G. Scott and Wm. Burges brought us next right down to days and to men within the memory of many of us. Sketches in Egypt by Owen Jones, and originals of illustrations in the works of M. Choisy and the Comte de Vogüé might be contrasted with drawings by James Stuart, of Remains in Greece. Designs by Cockerell, Elmes, and Decimus Burton were appropriately hung side by side; and rightly included in the catalogue was the remarkably fine Sectional Drawing through the dome and transepts of St. Peter's at Rome, by John Goldicutt, 1818, which adorns the Front Library. Elmes's tender and telling little sketch for St. George's Hall, Liverpool, shows the hand and reveals the mind of the master.

The vigorous personality of our former Secretary, William H. White, was recalled to us by a few strong sketches, from France and Belgium, hung in the old Council Room; where also was found an interesting series of small drawings illustrating old domestic building-work in this country, by W. Peart; and a fine set of most valuable sketches of painted decorations and figures from church roofs and screens in the Eastern Counties, by George Young Wardle. Genoese palaces received illustration in a collection of careful measured-drawings by D. Mocatta, 1828; whilst a selection of Italian door-knockers was displayed in some highly finished pencillings by A. Lippitsch.

A final touch of personal interest, for many members, was given by the "Perspective View of Design for the New Law Courts," by Alfred Waterhouse, shown in a large and striking drawing, in colour, from his own hand—a veritable autograph.

Besides the drawings displayed round the walls, there were laid out for inspection numerous volumes and portfolios containing sketches and mounted drawings. To these many of the guests proved to be specially attracted; and small wonder, seeing that in this collection were comprised original sketches by Andrea Palladio, Sir Wm. Chambers, James Stuart, T. L. Donaldson, J. Goldicutt, Chas. Texier, A. Pugin, Wm. Burges, Eden Nesfield, R. J. Johnson, Geo. Devey, and Wm. Simpson.

Altogether, this little, unadvertised exhibition of architects' accomplishment as draughtsmen and students of architecture seemed to mark by no means unfittingly the close of the series of pleasant reunions to which we have been so hospitably bidden by our President—himself a master draughtsman and lifelong student of architecture.

It sets one dreaming that some day there may yet be arranged, at the headquarters of British architecture, a continuous exhibition of the handiwork of past masters of our profession and of students in it; an exhibition parallel, in its way, to those held in the public galleries attached to our national collections of prints and drawings at Bloomsbury and South Kensington; where a periodically changing series of works may be displayed for the edification of present-day masters and students. The delineation of architecture, though it count but as an accomplishment, may nevertheless prove to be a not altogether negligible quantity in that delicate process—the moulding of the architect.

CAMPBELL DOUGLAS [*F.*]: A MEMOIR.

By A. N. Paterson, M.A. [*F.*].

Through the death, on the 14th April, of Mr. Campbell Douglas, there passed away the respected *doyen* of the profession in Glasgow at the advanced age of eighty-two.

Born in the year 1828, he entered on his apprenticeship to architecture in 1842; till within the last two or three years more or less actively engaged in the work, and to the end, though but nominally in practice, still alert in his interest in what was being done, he had thus an honourable connection of nearly seventy years' duration with the "Mistress Art."

After a general education received partly at home under his father, parish minister of Kilbarchan, Ayrshire (he "came out" with his family and congregation at the Disruption which gave birth to the Free Church in 1843), and partly at the University of Glasgow, he received his first training in architecture in the office of Mr. J. T. Rochhead, at that time the leading architect in Glasgow and author of many notable works there and throughout Scotland. Five years' apprenticeship with him was followed by some eight or more spent in gaining further knowledge and experience as draughtsman in various offices in Durham, Liverpool, and Brighton, after which Mr. Douglas finally returned to Glasgow to settle down to practise on his own account in 1856.

Commissions soon came to him, for in 1859 he was already engaged, along with smaller works, on the design of a mansion house of considerable importance—Hartfield, Cove, overlooking the Firth of Clyde, built for the late David Richardson and now one of the residences of Lord Inverclyde. It is a good specimen of the Scottish baronial style, effective in composition, and well suited to its situation between hill and loch.

In 1860 a partnership was entered into with the late Mr. J. J. Stevenson, at that time an assistant in the office, which during the nine years it lasted was productive of much good work. Kelvinside Free Church, understood to be mainly Stevenson's, which was dedicated in 1863, is a fine design in Italian Gothic with a detached campanile, and was followed almost immediately by Townhead parish church, of equal importance, designed principally by Campbell Douglas, under the influence of French thirteenth-century work. Other churches of this period or following shortly on it were Queen's Park Established, Claremont Street Wesleyan, and Free St. Enoch's, the last an interesting and successful plan for an awkward site occupying an acute angle between two streets, and having a lofty tower finished with an open crown after the manner of St. Giles's Cathedral, Edinburgh, and St. Nicholas, Newcastle. Other works of importance then in hand were Kiel House, Campbeltown, for Mr. James Nicol Fleming, but carried out later on a much enlarged scale; Westoe, South Shields, 1864, for Mr. J. C. Stevenson, a large brick mansion under the prevailing influence of the Gothic revival; and Kirkland, Edinburgh, 1867, for Mr. Constable, a house in the later Scottish Domestic style, of restrained and excellent character.

In the later years of the Campbell Douglas and Stevenson partnership another influence on the work produced begins to be felt, combined with that of the principals. In 1869 or 1870 Mr. Stevenson left to take up practice in London; in the latter year a competition was initiated for an important fountain in Kelvingrove Park, Glasgow, to commemorate the introduction of the city's water supply from Loch Katrine, in which the successful design was that of James Sellars, then draughtsman with the firm, but, shortly after Mr. Stevenson's departure for the south, assumed by Mr. Douglas as partner in his stead.

At this time, 1872–3, a work of the first importance was already in hand. The St. Andrew's Halls, Glasgow, the scheme of which comprised one of the largest and finest concert halls in the country, a ball-room suite, and several smaller halls of varying dimensions, had been carried as far as the sketch plans by Mr. John Cunningham, C.E., of Liverpool, and designer of the Philharmonic Hall there; but he having died before further progress was made, the work was handed over by the promoters to Mr. Douglas to execute. It has been described by one who was in the office at the time as the work of Mr. Sellars's "fertile brain and facile pencil," but from what has been said above, together with the internal evidence of the working drawings which bear many notes in Mr. Douglas's hand, it may be fairly held that, if the detailing is characteristic of the younger man at his best, Mr. Douglas and Mr. Cunningham also are entitled to share in the credit of this fine work of architecture.

A similar attitude is only reasonable regarding the responsibility for the work which followed during the fifteen years of the Campbell Douglas and Sellars partnership, even though the buildings themselves in most instances bear evidence of the predominating influence in design of the junior partner. It was a period of extraordinary activity and success. Public and commercial buildings, churches, schools, hospitals, and private houses were produced in such numbers as to prohibit the inclusion in an article such as this of even the barest catalogue. A few outstanding examples may be mentioned: in the first category, the Bank of Scotland buildings, the Scottish Amicable Insurance Company's offices, and those of the *Glasgow Herald*, Messrs. Wylie & Lochhead's warehouse, and the club house for the New Club—all in Glasgow; with town halls in Ayr, Campbelltown, Dysart, and Sinclairtown. Among churches, of which Mr. Douglas was author with one or other of his partners to the number of fifty-three, the more notable at this period were Blackfriars, Hill-

head, Burnbank, Belhaven, Queen's Park, Anderston, in various districts of Glasgow; St. Andrew's Free in Edinburgh, Free Abbey in Dunfermline, with others as far distant as Bournemouth, Hampstead, and Londonderry. Of schools there were several for the Glasgow and other school boards, Kelvinside Academy, an important proprietary institution, and Spiers' School, Beith; of hospitals, the Victoria Infirmary, and Sick Children's Hospital in Glasgow, a cottage hospital at Langholm, and mission hospitals at Safed and Tiberias in Syria; of important private houses, Mugdock Castle, Bullionfield, Dundee, Auchenheglish, Loch Lomond, Netherhall, Largs (the seat of the late Lord Kelvin), Doonholme, Ayrshire, and others.

For several of the churches, in particular, Mr. Douglas may be regarded as mainly, if not solely, responsible. Of these were Blackfriars, with twin truncated towers (one only carried to completion), which was designed by him after studying Paderborn and other old Romanesque buildings in North Germany in 1872–3; St. Andrew's, Drumsheugh Gardens, Edinburgh, a fine Renaissance building on a difficult site, consorting with and at the same time dominating, as a Gothic design would not have done, the tall houses on either hand; and the Free church at Dysart, on simple Gothic lines with a central tower and three semi-circular-ended apses, an admirable example of a village church, and well in keeping with those earlier ones which give charm to an architectural tour through the little towns of the Fifeshire coast.

The finely conceived buildings for the Glasgow International Exhibition of 1888 were solely the work of Mr. Sellars, Mr. Douglas having been laid aside at that time by a protracted illness; they are mentioned here as having been the main cause, through overstrain, of that brilliant architect's premature death, which occurred in the same year.

Shortly afterwards Mr. Douglas, recovered in health but feeling the effect of advancing years, took in Mr. Alex. Morrison, one of his senior draughtsmen, as partner. The work which followed was neither so extensive as, nor of equal quality to, that of the previous period, but it included the second section of the Victoria Infirmary, another important school for the Glasgow Board, the Free Public Library, Ayr, church and hall at Milngavie, Sandeman Library, Perth, Cowan Institute, Penicuik, and the Infectious Diseases Hospital at Kirkcaldy among other buildings of importance.

This partnership Mr. Douglas found it necessary to dissolve, and for several years he continued alone until, in 1903, his business was conjoined with that of the writer, an arrangement which subsisted until his death. Though keenly interested in all that was being done, and always ready to assist as friendly mentor and critic, Mr. Douglas from this time took little part in the management or design of the works in hand except as regards one or two of minor importance in which he had a personal interest. In 1906 he had a recurrence of his previous illness, and in the following year went to live quietly in Edinburgh.

Then for the first time was severed his long connection with No. 266 St. Vincent Street, a house which he acquired in the early days of the Stevenson partnership, and in which, after the older fashion now so seldom followed, the head and his family occupied the upper flats as a dwelling house, while the ground floor, with an extension over the back garden, served (as it still does) as office for the staff, which was regarded in turn as but a larger family.

Of the assistants in those earlier days not a few have since become prominent in the architectural world; of such (in addition to the three first partners, all trained in the office) were B. J. Talbert and J. M. Brydon, who passed away before their old chief; William Leiper, William Flockhart, Washington Browne, William Wallace, F. W. Troup, John Keppie, William Ferguson, William Ross, and others perhaps not less deserving, if less widely known, and all still happily to the fore. To several of these I am indebted for assistance in preparing this short memoir.

If the cross-currents in the work done during the various partnerships render it difficult to appraise with exactness the quality and performance of Campbell Douglas as an architect, not so is it with regard to his character as a man. Honourable, courteous, kindly throughout life, with a keen and delightful fund of humour, a fine appreciation of beauty in art and nature, and a warm interest in the work and methods of the younger generation, he held the affection and respect of all who came in contact with him. From Mr. Flockhart's kindly communicated recollections of his engagement as assistant for some years during the seventies, I venture to quote the following lines:—"No one could be in Mr. Douglas's office without benefiting by the broad-minded generosity of his nature, and I have a very pleasant recollection of the musical At-Homes which he had, and to which his assistants were always asked. He had a hearty joyous nature which enabled him to hold things with so light a hand that the work of the office seemed to go on with a sensation of ease and pleasure which one appreciates more as one goes on in life."

In these later years of advancing age, the entertainment "up-stairs" was naturally of a less lively nature, but the kindly heartiness prevailed as of old, and I, for my part, am not likely to forget the courteous welcome received, the warm-hearted interest expressed by him and the gracious and talented lady who so fully shared his life, and now mourns his loss.

Mr. Douglas, it may be added, was made a Fellow of the Royal Institute in 1879, and was for four years (1891–95) one of its Vice-Presidents. He was an original member of the Glasgow Institute of Architects, which he joined in 1868, served

many years on its Council, and was for two terms President. He was a Justice of the Peace for Argyllshire, where he had his country house on the shores of Loch Goil, and was a member of the Philosophical Society of Glasgow and of the Ecclesiological Society, in the work of which he took a warm interest.

Mr. James A. Morris [*F.*], of Ayr, N.B., in a letter to the Editor of this JOURNAL, writes:—"Mr. Campbell Douglas was one of the kindliest and most genial of men—a man good to be met with, but better still to know. He held his own opinions strongly, yet still was always tolerant of the opinions of others. Absolutely reliable, and a good architect, he was highly esteemed; and although for some years he has been gradually passing into a quiet retirement, he carried with him the respect of his many friends, and any reference to his name always evoked friendly commendation and ready good-will."

REVIEWS.

"ZINC WHITE" *v.* "WHITE LEAD."

Oxide of Zinc, its nature, properties, and uses, with special reference to the making and application of paint. By J. Cruickshank Smith, B.Sc., F.C.S. Edited by Arthur Seymour Jennings. Lond. 1909. [*The Trades Publishing Co. Ltd.*]

This little handbook is published with the avowed object of promoting the use of "zinc-white" in preference to "white lead" in painting—presumably house-painting—and both author and editor are well-known advocates of its adoption in that practice.

The case is stated very clearly and fairly, and certainly without leaving untold the hygienic drawbacks to the manufacture and use of white lead. The latter has, however, been in use in this country for some 300 or 400 years, its use and properties are familiarly known, and the precautions necessary for the safety of those engaged in its manufacture and application are now understood; so that the dangers attending either are very greatly reduced. Forms of lead poisoning which were common seventy years ago among house-painters are now rare. I have known many hundred artisan painters and do not remember a case of "dropped hands"—the form of paralysis by lead poisoning formerly frequent. Cases of "painter's colic" occur from time to time, but if not neglected yield to treatment in a few days; with both it is a question of personal cleanliness—the invariable washing of hands after work and before taking food, and (it may be added) sobriety. As a rule, painters will be found a fine healthy set of men, as long-lived as other workmen where they have been properly trained. It is the casual untrained man, turned painter, who is apt to suffer. Washing has never been his strong point, and he is hard to convince of its necessity. I should certainly be sorry to see the prohibition of white lead in this country, for in our humid atmosphere I believe it to be the best protective material, as paint, that we yet have.

There is no doubt, however, of the value of oxide of zinc as a pigment, but it must be understood, and it must not be used as a chance substitute for white lead; above all, lead driers (in ordinary use with white lead) must not be used with it. The fact seems to be that it is on the use of specially prepared oils and driers that success in the use of zinc white largely depends (see p. 35). It has never been reckoned so good a "covering" paint nor so good a drying paint as white lead. Experimental trials, conducted with special care, may give satisfactory results; but in broad use I believe this to be true. Mr. Cruickshank Smith (in chap. iii.) goes into this matter, but it is evident that he has found that very skilled handling of the paint is necessary. In the previous chapter he appears to approve the admixture with oxide of zinc of other and inferior materials such as barytes and gypsum. But the permission for such admixtures, to which makers are already too prone, would be fatal to honest painting. If adopted at all it should only be at the wish of the client and under definite control.

Those interested in the subject will find in the handbook much information; but the reader who has practical experience of painting will be satisfied that, before specifying work to be painted in oxide of zinc, he should carefully study the details if he wishes to ensure success.

J. D. CRACE [*Hon. A.*].

CORRESPONDENCE.

GUILD OF ARCHITECTS' ASSISTANTS.

137 *Church Street, Edgware Road, W.:* 1*st June* 1910.

To the Editor JOURNAL R.I.B.A.

DEAR SIR,—The following letter has been addressed to *The Times* and seven other papers:—

"The Executive Council of the Guild of Architects' Assistants desires to call the attention of the public to the present overcrowded state of the architectural profession, and to warn parents of the inadvisability of placing their sons as pupils to the profession at the present juncture, unless they are fully satisfied of their ability, sufficiency of capital, and social position to form a practice of their own on completion of their articles, or that an official appointment of some kind is assured."

I feel sure that my fellow members of the Royal Institute will be gratified to know that something has been done to inform the public of the condition of our already overcrowded profession.

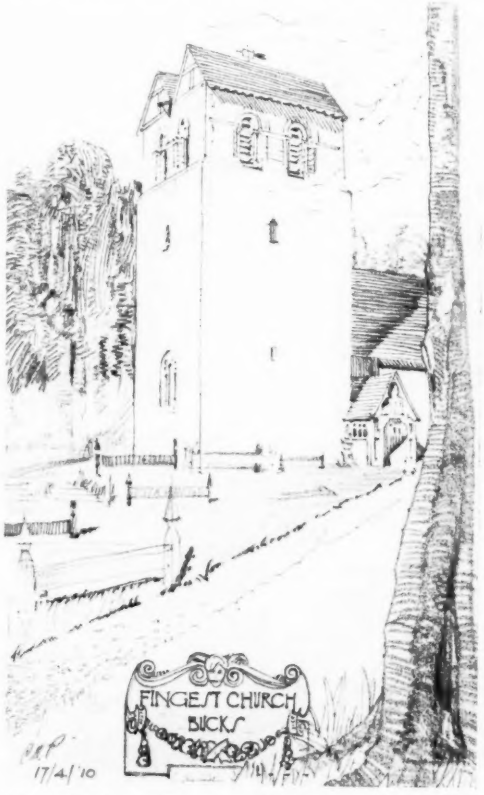
Yours truly,

ERNEST J. DIXON [*A.*].

FINGEST CHURCH, BUCKS.

The Church of Saint Bartholomew, Fingest, (locally pronounced with a soft " g ") stands at the head of the Hambleden valley about seven miles from Great Marlow. Seen across the valley the fine tower, with its curious double saddle-back roof, forms a striking feature.

The whole church has been thoroughly illustrated and described by Mr. W. A. Forsyth in Volume VIII. of the Records of Bucks. The Norman tower is of unusual size, being about 27 feet square out-



side and 8 feet wider than the nave. Its height is about 60 feet. The twin gables were added in the fourteenth century. The walls are built chiefly of flint with stone quoins and are rendered inside and outside. There is no staircase; access to the belfry is gained by ladders.

It is surprising to find that an Episcopal Palace of the Bishops of Lincoln, of which a few stones remain, once adjoined the churchyard. It is known from manuscripts in the Bodleian Library that several bishops of Lincoln resided here, and carried out their duties from this place, in the thirteenth and fourteenth centuries.

CECIL H. PERKINS [*A.*].

9 CONDUIT STREET, LONDON, W., 11*th June* 1910.

CHRONICLE.

Town Planning Conference.

The Town Planning Conference which, as announced in the last issue of the JOURNAL, has been postponed on account of the death of his late Majesty, will be held from October 10th to 15th next. The detailed programme will be issued as soon as possible. It may be mentioned that the President of the Local Government Board, Mr. John Burns, has kindly accepted the position of Hon. President of the Conference. The President is Mr. Leonard Stokes, *President-elect R.I.B.A.* Mr. John W. Simpson [*F.*] has been appointed Secretary-General, and all correspondence relating to the Conference should be addressed to him.

The President's "At Home."

The " At Home " given by the President in the rooms of the Institute on Monday, the 30th ult., was numerously attended, members being present from all parts of the country. Displayed on the walls of the Library and ranged on tables in volumes and portfolios was a large collection of original drawings forming part of the possessions of the Institute. The exhibition excited much interest, some of the drawings shown of the great masters being fresh even to those most at home among the Institute collections. Reproductions of a few of these illustrate the article which Mr. Walter Millard has very kindly contributed to the present issue [pp. 599–605].

The Annual Elections.

At the Business General Meeting of Monday, 6th inst., the Officers, Council, and Standing Committees for the ensuing Session were declared duly elected, in accordance with the Scrutineers' Report, as follows :—

THE COUNCIL.

President.—Leonard Stokes.

Past-Presidents.—Thomas Edward Collcutt; Ernest George.

Vice-Presidents.—Reginald Blomfield; Alfred William Stephens Cross; Edward Guy Dawber; Ernest Newton.

Hon. Secretary.—Henry Thomas Hare.

Representatives of Allied Societies.—Henry Clement Charlewood (Northern Architectural Association); John

Bennie Wilson (Glasgow Institute of Architects); Percy Scott Worthington (Manchester Society of Architects); William Morton Cowdell (Leicester and Leicestershire Society of Architects); Arthur Stansfeld Dixon (Birmingham Architectural Association); Robert Evans, jun. (Nottingham Architectural Society); Sydney Decimus Kitson (Leeds and Yorkshire Architectural Society); Arnold Thornely (Liverpool Architectural Society); John Watson (Edinburgh Architectural Association).

Members of Council.—Maurice Bingham Adams; John James Burnet; Walter Cave; Max Clarke; William Flockhart; William Adam Forsyth; James Sivewright Gibson; John Alfred Gotch; Edwin Thomas Hall; George Hubbard; Henry Vaughan Lanchester; Edwin Landseer Lutyens; A. Beresford Pite; Andrew Noble Prentice; Halsey Ralph Ricardo; Henry Heathcote Statham; Sir Alfred Brumwell Thomas; Paul Waterhouse.

Associate Members of Council.—Sidney Kyffin Greenslade; Charles Edward Hutchinson; Charles Herbert Reilly; Harry Inigo Triggs; Herbert Winkler Wills; Arthur Needham Wilson.

Representative of the Architectural Association.—Arthur Keen [*F.*].

Auditors.—John Hudson [*F.*]; William Henry Burt [*A.*].

THE STANDING COMMITTEES.

Art.—Fellows: Walter Cave; Edward Guy Dawber; William Flockhart; Henry Thomas Hare; Gerald Callcott Horsley; William Richard Lethaby; Robert Stodart Lorimer; Edwin Landseer Lutyens; Edwin Alfred Rickards; John William Simpson.—*Associates*: William Henry Bidlake; Thomas Davison; Thomas Geoffry Lucas; Walter John Tapper; Septimus Warwick; Edgar Wood.

Literature.—Fellows: Frank Thomas Baggallay; John Alfred Gotch; Sir Charles Archibald Nicholson, Bart.; George Halford Fellowes Prynne; Halsey Ralph Ricardo; Frederick Moore Simpson; Richard Phené Spiers; Henry Heathcote Statham; Charles Harrison Townsend; Paul Waterhouse.—*Associates*: Frank Lishman; Herbert Passmore; Charles Edward Sayer; Cyril Wontner Smith; Arthur James Stratton; William Henry Ward.

Practice. — Fellows: William Henry Atkin-Berry; Howard Chatfeild Clarke; Max Clarke; Alfred William Stephens Cross; George Hubbard; Joseph Douglass Mathews; Alfred Saxon Snell; Henry Tanner, jun.; Thomas Henry Watson; William Woodward.—*Associates*: Kensington Gammell; Edward Greenop; Edwin Richard Hewitt; Herbert Hardwicke Langston; Harry John Pearson; Augustus William Tanner.

Science.—Fellows: Harry Percy Adams; Bernard Dicksee; William Dunn; Frederic Richard Farrow; Matt. Garbutt; Francis Hooper; George Hornblower; John Murray; Charles Stanley Peach; Herbert Duncan Searles-Wood.—*Associates*: Henry William Burrows; Charles John Marshall; Alan Edward Munby; Digby Lewis Solomon; Ernest William Malpas Wonnacott; Ernest Alexander Young.

The Scrutineers' Reports giving details of the voting form part of the Minutes, pp. 619–20.

The Annual Elections: Spoilt Voting Papers.

Mr. REGINALD BLOMFIELD, A.R.A., Chairman of the General Meeting last Monday, in moving a vote of thanks to the Scrutineers for their labours in connection with the elections of the Council and Standing Committees for the ensuing year, observed that it was extremely satisfactory to find such an immense quantity of ability at the service of the Institute, because, though they all felt that the men elected to the Council and Committees were very able men and would discharge their duties in the most satisfactory manner, he also felt—and he thought members would agree with him—that there were a great many able men who were not so elected. The net result was that there was a great quantity of ability at the service of the Institute whenever it was called upon to discharge the duties of the Council and Committees. With regard to the announcement of the names, he should like to make a suggestion, though it was quite informal and out of order. He did not see why the names of the gentlemen who were not elected should be read. Elected and non-elected were all equally able men in these matters, and he hoped that those who were unsuccessful on the present occasion would come up for election another time. However, his present duty was to move a vote of thanks to the Scrutineers—and he would couple with it the name of Mr. I'Anson—because they must have had a most arduous duty. He gathered that in one instance there were 28 spoilt papers and in another 51; that meant an infinite quantity of work on the part of the Chairman and his colleagues in dealing with the result of the election, and he thought they owed them a considerable debt of gratitude for the trouble they had taken in so carefully scrutinising the results.

Mr. LEONARD STOKES, *President-elect*, said he should like to add his word of thanks to the Scrutineers. The time and labour spent on this work must have been very considerable, and it would be interesting to know—it might help them in the future—how it came about that so many of the papers were spoilt, because 66 out of a few hundreds was an enormous proportion. Either it must be gross stupidity on the part of the voters, which it was hard to imagine, or it must be due to carelessness in marking the papers. Again, it was possible that the form of the papers themselves had something to do with it. In some cases there were a number of men to choose from, and voters had to scratch out a great many. If it was simply that the voter did not scratch out enough it was easy to understand; but if it should be that in handling the papers voters did not understand where to mark them, that would make a difference. It certainly seemed a pity that 66 papers should be spoilt in one particular Committee from some cause unknown to members at present. It might be a simple cause, or it might be one that they could not control, but if they could control it it seemed to him that they ought to try. Therefore he thought they might ask the Scrutineers whether they could tell them how it was that so many votes were lost and so many papers spoilt.

Mr. H. HARDWICKE LANGSTON [*A.*] said that, as one of the Scrutineers, he was in a position to answer the question. He should attribute the spoilt papers to gross carelessness. Sometimes voters left, say, 24 names instead of 16 or 18, as the case might be, and of course that invalidated the

papers. Sometimes they did not take the trouble to cross out the name at all, but simply put a little cross at the side. That sort of thing would be passed provided the right number were so marked, but otherwise it was necessary to reject the paper.

Mr. H. HEATHCOTE STATHAM [*F.*] : A large number of people do not read the directions. The papers are as simple as possible.

A MEMBER : I should like to say, as one of the Scrutineers of the 51 spoilt papers, that it was a matter of scoring out too few names. Instead of erasing nine, voters would erase, say, seven or six or eight, and the Chairman had consequently to rule them out.

THE SECRETARY : I may say that I saw the great bulk of the spoilt papers myself, and can endorse what the last speaker has said ; papers were spoilt in most cases because nembers had voted for too many people.

THE CHAIRMAN : I am afraid, then, it must be put down to the carelessness of our colleagues, and we must ask them to be a little more careful at another election.

Advance Proofs of Sessional Papers.

At the General Meeting last Monday, Mr. H. HARDWICKE LANGSTON [*A.*], in accordance with notice, moved the following resolution : "That it be an instruction to the Secretary to provide and distribute to members attending when Papers are read a synopsis, or an advance proof, of the subject dealt with by the lecturer." Mr. Langston said that the extreme simplicity of the motion would, he ventured to hope, ensure its unanimous approval. It aimed at an enlargement of an existing system the benefit of which, however, had hitherto only been enjoyed by a privileged few. He believed it was the custom to provide a limited supply of advance proofs of Papers read at the Institute ; therefore to increase that supply so that a copy should be at the service of each member attending the Meeting would not add very much to the printing bill. Moreover, attentive interest in the Papers read would be greatly enhanced if each member present could intelligently follow the matter discussed—a condition not always possible without a copy of the Paper, and especially so when the lecturer, it may be by misfortune, was not endowed with great fluency of speech.

Mr. GEORGE HUBBARD, F.S.A. [*F.*], seconded the motion. An advance proof in the hands of the audience would certainly be a great convenience and make it much easier to follow the lecture. There was also another advantage : sometimes a man would be inclined to take part in the discussion if he had been able to take proper notes during the lecture. This was not very easy to do under present conditions, but would be a very simple matter if he were furnished with a copy of the Paper. If there was no practical difficulty in the way he thought the suggestion a very good one, and he had much pleasure in seconding it.

Mr. JOHN SLATER [*F.*]: I understand the suggestion to be that an advance proof should be sent to members attending. But that is impossible : one cannot tell who is going to attend. If we are to have advance proofs at all, they must be sent out with a notice to every member of the Institute.

THE CHAIRMAN : The proposal is that they should be provided and distributed to members attending when the Paper is read. I understand Mr. Langston to mean that they should be distributed in this room.

Mr. LANGSTON : That is what I mean.

A MEMBER : Might I suggest that advance proofs might be provided and handed to any member applying for a copy, as is done at the Institution of Civil Engineers ?

Mr. HUBBARD : There might be some practical difficulty in that. Papers are not ready much in advance of the date of delivery, and to have them in print at the Institute some days beforehand would present some difficulty.

Mr. W. HENRY WHITE [*F.*] : It is not suggested that the full paper should be in print, but that there should be a synopsis ; that, I understand, is what Mr. Langston suggests.

Mr. LANGSTON : Or advance proof.

Mr. H. D. SEARLES-WOOD [*F.*] : A synopsis would take time to prepare, and would be an additional expense to print. It would be sufficient to provide 200 or 250 advance copies of the Paper, so that anyone coming to the Meeting might apply for one.

Mr. MAURICE B. ADAMS [*F.*] said he thought it would be rather a disadvantage to the Institute to send out copies of the Paper beforehand, excepting to those gentlemen who were specially invited to attend with a view to their adding to the interest of the evening. A great advantage which often accrued from these Papers was that specialists were invited to come and propose or second a vote of thanks and thus be given an opportunity of offering some remarks on the subject under discussion. He thought it would be most unwise to send out broadcast copies of the Papers. It would be sufficient if copies were placed on the table, so as to be at the disposal of anyone sufficiently interested to be present.

Mr. HEATHCOTE STATHAM [*F.*] suggested that a short statement of the heads of the Paper should be printed under the title in the circular calling the Meeting. He belonged to a society called the London Musical Association where that was done ; the Papers were advertised on a card like a post-card, on which there was room for six or eight lines of small print, in which all the heads of the Paper were put down, so that one knew what line the author would take and what special points he wanted to prove. That could be very easily done, and could be made a general feature in sending out

notices of the Meeting. And he would suggest that the proper person to do it was the author of the Paper, partly because he thought the Editor had enough work on his hands already, and partly because, if the Paper was not quite finished at the time, the author at all events knew what he was going to say. He should like, therefore, to make the suggestion that the author of the Paper should be asked to send a short *résumé* of the heads of the subject to be printed in the circular calling the Meeting, underneath the title of the Paper. In the case of the last Paper that was read, "The Art of the Monument," many members had no idea at all what line the author was going to take. They would have had a better notion of what they were coming to hear if they had had the little *résumé* he suggested.

A MEMBER: That is done by some local societies, and it is a very troublesome thing to do. I think there is hardly anything more difficult than to draw up a synopsis of a Paper, and sometimes it gives an entirely wrong impression.

Mr. STATHAM: I have often done it myself and have never found any difficulty.

Mr. JOHN SLATER said that his experience on the Council was that very often the author did not send in his Paper until two or three days before the Meeting, and with dilatory people like that—and one could not help authors being dilatory sometimes—it would be very difficult to get the synopsis. If a précis of the Paper could be prepared and sufficient copies provided to hand round at the Meeting, that he thought would be a more practicable way of meeting the requirement than that which Mr. Statham suggested.

THE CHAIRMAN: We ought to hear, I think, what the Secretary has to tell us from a financial and practical point of view.

THE SECRETARY: As regards the present practice, we send out an advance proof of the Paper to anyone who we have reason to believe is specially interested in the subject and is likely to attend and speak; and whenever anyone applies for an advance proof, if it is possible to supply it we do so. The cost of supplying fifty advance proofs at each Meeting would be about £10 a year, and for a hundred about £14. A hundred is rather more than the average attendance, so that as a rule a hundred copies would be ample for each Meeting. A synopsis, I am afraid, would be out of the question on most occasions, as Papers are often not received until almost the last moment.

Mr. LANGSTON suggested that the number of copies provided should be limited to a hundred, and those who came first would be served first.

THE CHAIRMAN, in summing up the discussion, said that there seemed to be a certain agreement as to Mr. Langston's proposals, though many different views were expressed. Mr. Maurice Adams felt that it would be undesirable to distribute the Papers too freely beforehand, and he was inclined to agree with him; it might reduce the Institute to the position of some societies which issued their Papers beforehand, with the result that nobody came to the Meeting. A man having the Paper could read it comfortably at home, and would not trouble to go to the Meeting. So that, quite apart from the question of expense, it would probably be undesirable to issue the Papers beforehand. Then Mr. Statham proposed that the authors of Papers should provide a brief synopsis, which should be printed on the notice-paper underneath the title of the lecture. One speaker said he thought this extremely difficult, but he confessed he could not see the difficulty. A man who was going to read a Paper must have some ideas in his head as to its general lines. He does not wait until he has written his Paper to know what his ideas are; and it would be quite easy for him to group them under half a dozen heads. He thought Mr. Statham's idea quite reconcilable with this proposal. The cost of supplying these extra advance copies seemed a small one, and the Institute could well afford it. He thought they should do all they could to add to the interest of their Meetings. He quite agreed with Mr. Langston that if members could be given beforehand some idea of the general heads of Papers, they would take much greater interest in the Meetings and the discussions would be better and more useful. He would therefore put the motion: "That it should be an instruction to the Secretary to provide and distribute to members attending when Papers are read a synopsis or an advance proof of the subject dealt with by the Lecturer."

Mr. MAX CLARKE: Would Mr. Langston agree to limit the number of advance proofs to be supplied to one hundred?

Mr. LANGSTON: Yes, I have already agreed to that.

THE CHAIRMAN: "The issue to be limited to one hundred"—shall I add those words?

Mr. LANGSTON: Yes, I agree certainly.

The motion being voted upon in these terms was carried unanimously.

Special General Meeting, 9th June.

The Special General Meeting, for which notices were issued last week to all members residing in the United Kingdom, was duly held on Thursday, the 9th inst. The Chairman, Mr. James S. Gibson, made a statement showing that the possession of the Architectural Union Company shares, which the Council were asking powers to purchase, would be both for the present and future benefit of the Institute, and was strongly recommended by the chartered accountants who were advising the Council on the matter. As will be seen by the Minutes of the Meeting printed on page 620, the resolutions were carried unanimously, and the confirmatory resolution required under the Charter

is to be brought forward on Monday, the 20th inst. A Special General Meeting has been called for this purpose at 8.25 on that evening; and this will be followed at 8.30 by the Ordinary General Meeting for the presentation of the Royal Gold Medal to Mr. T. G. Jackson, R.A.

Election of Licentiates R.I.B.A.

At the Council Meeting of the 6th June the following candidates, having been found eligible and qualified under the Charter and By-laws, were elected Licentiates of the Institute in accordance with the provisions of By-law 12 :—

ABERDOUR, James Gordon.
ALLEN, George Pemberton.
BAILEY, William Henry (Maritzburg).
BARNARD, Leonard William (Cheltenham).
BELSHER, Bernard James.
BENNETT, John (Bolton).
BETENSON, Frederic Roger, F.S.I.
BISSELL, George Ernest (Colchester).
BOURNE, John Charles.
BRIGGS, George Hamilton.
BROOKS, Stanford Morton (Glasgow).
CALLCOTT, Charles William.
CHURCH, Arthur Harold.
CLARK, Charles Richmond Rowland (Basingstoke).
CLAY, George Felix Neville, B.A.Cantab.
COLERIDGE, John Duke.
COLVILLE, Hubert Leonard.
COOK, Ellis Taylor (Rotherham).
COX, Bernard Joseph Farrar.
CREIGHTON, Henry Richard.
DAVIDSON, William, *Owen Jones Student* 1904 (Edinbro').
DAVIES, Ivor Samuel (Bangor, N. Wales).
DAVIS, George Walesly (Darlington).
DEWES, Walter.
DIGHT, Alfred Henry (Birmingham).
DUFF, John (Rephad, Stranraer).
FRY, Peter George (Weston-super-Mare).
GEORGE, Allan.
GILBERTSON, Alfred (Liverpool).
GRIFFITH, Edward Henry Herbert (Ringwood).
GUNSON, Ernest (Manchester).
HARBER, William Francis.
HAVERS, Albert Charles (Norwich).
HEATHCOTE, Charles Harold (Manchester).
HEATHCOTE, Ernest Grigg (Manchester).
HEWITT, Stanley Goodison (Liverpool).
HOOK, John.
KEMPSTER, Fred.
LAING, Henry George Malcolm.
LAWRENCE, Joseph Thomas.
LUCAS, William Louis, B.A.Cantab.
MARTIN, Robert (Manchester).
McLACHLAN, Herbert Guthrie.
NEWMAN, Charles James (Rugby).
NORTON, Charles Harrold.
PARTRIDGE, Sidney Herbert (Newton Abbot).
PULLIN, Charles Henry.
ROBERTSON, George Birrell, *President of the Institute of Architects of N.S.W.* (Sydney, N.S.W.).
SCRIVENER, Harold Moore (Northampton).
SHANN, Frank Halliwell.
SHARPE, Thomas William.
SHELMERDINE, Edmund John.
SIDWELL, Henry Thomas (Rayleigh, Essex).
SINCLAIR, Colin, M.A., F.S.A.Scot. (Glasgow).
SKIPPER, Charles Frederick (Cambridge).
SMITH, William Auger (Nottingham).
TANNER, Douglas George (Eastbourne).
TATCHELL, Sydney Joseph.
TAYLOR, William (Aylesbury).
TOOMBS, Edwin Ashley.
TOWNSEND, Charles William.
WATERWORTH, John Halsted.
WEBB, William Herbert.
WILLIAMSON, Walter (Bradford).
WINDER, Thomas, Assoc.M.Inst.C.E. (Sheffield).
WINDSOR, Frank.
WIRE, Wilfred Travers.

New Australian Allied Societies.

The Council have admitted to alliance with the R.I.B.A. the Royal Victorian Institute of Architects, whose seat is at Melbourne, and the West Australian Institute of Architects, centred at Perth, W. Australia.

The Royal Victorian Institute, founded in 1871, and incorporated in 1890 under the Statutes of the Parliament of Victoria, was established for the advancement, protection, and elevation of architecture as an art, and the cultivation of friendly intercourse between its members. Its present membership consists of fifty-two Fellows, forty-nine Associates and four Hon. Fellows. Provision is made in its articles of association for holding examinations and granting diplomas.

The West Australian Institute was founded in 1892, its object being the study and cultivation of the science and art of architecture; advancing, protecting and elevating the practice of it in its several branches, and the cultivation of friendly intercourse between the members of the Institute. Its funds may be applied in furthering professional education and in conducting examinations which the Institute may arrange to hold. There are four classes of members, life Fellows, Fellows, Associates and Honorary Fellows. At present the Institute has twenty-three Fellows and ten Associates on the register.

The late Henry Jarvis: Legacy to the Institute.

Intimation has been conveyed to the Council that the Institute is to benefit very considerably under the will of Mr. Henry Jarvis [*Associate* 1866, *Fellow* 1878], of 9 Norfolk Terrace, Brighton, formerly of 29 Trinity Square, Borough, who died at Rome on the 4th March last. The *Daily Telegraph* of the 31st May, since confirmed by one of the trustees of the will, reported that the estate is "of the gross value of £36,047, with net personalty £25,182. Testator left £52 per annum to his brother, George Gray Webb Jarvis, £500 to his nephew, Harold Jarvis, £3,500 upon trust for his niece, Gwendoline Jarvis, £3,500 upon trust for his niece, Edith Selina Jarvis, £2,000 upon trust for his niece, Maud Foster, £300 to his nephew, Noel Jarvis, and he left the residue of his estate to Mr. Nicholas Savery Pasmore, Mr. Herbert Duncan Searles-Wood, and Sir Aston Webb, R.A., President of the Royal Institute of British Architects, upon trust, as to £21 per

annum to each of them for their trouble in connection with the trusteeship, and to hold the remainder for the Royal Institute of British Architects, the capital to be used either for the foundation of travelling studentships to be known as the 'Jarvis' Travelling Studentships, or for the purchase and maintenance of a building to be used as the headquarters of the Royal Institute of British Architects. The amount available for the bequests would appear to be between £15,000 and £20,000."

The Norman Undercroft in Westminster Abbey.

The Norman Undercroft, which adjoins the ancient Chapel of the Pyx at Westminster, is now open to the public on days when the royal chapels are shown, a small fee being charged for admission. The Undercroft is a range of five vaulted bays, which, by the removal of partitions, have been made into one long chamber. It is situated at the south end of the Chapel of the Pyx, and the dividing wall, apparently, has been pierced at some time by two bays, the outlines of which are visible. Overhead is the old dormitory of the monks, part of which is now Westminster School. These buildings are practically all that remain of the building of Edward the Confessor. For many years past the Undercroft has been mainly a receptacle for lumber, and its architectural beauties have been hidden by the masses of old stone and other material with which it has been littered. One of its three entrances has been used by the boys of Westminster School as a short cut from the cloisters to their gymnasium. As the result of the recent restoration by the Dean and Chapter the Undercroft is now a rectangular chamber of about 110 feet long and 45 feet wide. The four pillars which divide the Undercroft into five bays are situated in a line in the centre of the chamber. In two of them much of the original stonework of Edward the Confessor's buildings is visible. The second pillar from the north end presents a curious appearance. On one side it slopes inwards and downwards from the capital, forming a recess which might be used for a small altar or an image. The pillar has now been buttressed. One of the bays and part of another contain the original vaulting. The eleventh-century carving of the capitals of some of the pillars remains—not altogether intact, but sufficiently complete to enable a clear idea to be formed of its characteristics. Some relics which have been found in various parts of the Abbey have been collected in the Undercroft. Among the stones which were brought to light while the floor of the Undercroft was being reconstructed are a number of fragments which are believed to have formed part of the Norman arcading of the original cloisters. These fragments have been fitted together at the south end of the chamber as a tentative reconstruction of three arches of the old arcade. The three bosses are elaborately carved, and one of them, which depicts scenes from the Judgment of Solomon, is in an excellent state of preservation. Among the other architectural fragments is one which is supposed to have been one of the bosses of the old Chapel of St. Catherine. The carved wooden Jacobean pulpit of the Abbey is also preserved in the Undercroft, together with several of the old wooden effigies of kings and queens of England, which it was the custom at royal burials to carry upon the coffin. These images are of older date than some of the wax effigies which have been preserved at the Abbey. Those of Edward III., Elizabeth of York, Henry VII., Catherine of Valois, and Anne of Denmark are fairly complete, but the figure of James I. is without the head, and that of Henry Prince of Wales is simply a bare trunk without vestige of clothing. Some of the figures are carved out of large blocks of wood without joints; others consist of separate limbs fitted together. That of James I. is partly clothed in what is supposed to have been its original costume.

The *Architects' and Builders' Journal* this week has some excellent photographic views of the Undercroft.

Canterbury Cathedral.

In the JOURNAL of the 6th November last was quoted from *The Times* some particulars given by Mr. W. D. Caröe, F.S.A. [*F.*], of the discovery of one of Lanfranc's original tower piers embedded within the north-west pier of the great Angel Steeple of Canterbury Cathedral. *The Times* of the 30th ult. published the following further notes from Mr. Caröe:—

The portion of the Norman pier disclosed proved to be the central shaft of that part of the pier which carried the Norman tower arch across the north transept, and we find that Prior Chillenden's men cut away parts of the north side of the Norman pier and added largely to its southern or inner side. They planned their new tower the same size as Lanfranc's externally, but thickened its walls materially internally.

Of the shaft in question we have been successful in finding the capital *in situ*—a simple cushion of early Norman design and of very considerable projection. The Norman archspring was some 15 feet below the present one.

By these discoveries we are better enabled to gauge the scheme of this part of the Norman church, hitherto somewhat conjectural.

Quite apart from these incidental matters of archæological interest, the wisdom of undertaking the work of consolidating the tower piers has been amply justified by the practical results obtained.

By the aid of the grouting machine we have been able to introduce 1,140 gallons of liquid cement grout into the cavities of the pier. This can be visualised by regarding it as its equivalent in a close-grained solid material. It would just make a solid column the full height of the pier as measured from the nave floor and 2 feet by 1 foot in area. It is hardly surprising that a composite structure containing such cavities, and sus-

taining so great a weight, showed many signs of stress, a source of anxiety which those in charge of the fabric are glad to be free from.

The rebuilders of the nave were evidently aware that they were dealing with a problem of some delicacy. They seem to have tied together the old work and the new by lead plugs, run molten into cavities cut to receive them. At what intervals apart these were inserted we do not know, but one such is now exposed just under the Norman capital.

The pier having been so much strengthened by our recent successful operations, it has been possible to leave a small recess in which Lanfranc's capital can be seen from the floor, a point of no small added interest in the building.

The scaffolding has now been removed and transferred to the south-west pier, also in a fractured condition, but which we shall strengthen in the same manner, and we hope with equal success.

Incidentally I may perhaps refer to an interesting oil painting which has lately come into my possession. It is inscribed "Thos. Johnson fecit. Canterbury Quire as in 1657. Y^e^ prospecte from y^e^ Clockhouse." Johnson drew for Dugdale, and it is on record that Mr. Johnson, of Canterbury, showed the Royal Society in 1685 (when Sir Christopher Wren, one of its founders, was a prominent member) a curious prospect of the Cathedral drawn by himself in oil colours. Whether this is that identical work or not, it introduces its author to us as an English architectural painter of no little skill and of painstaking accuracy. He shows with minute—almost photographic—exactness the condition, at the close of the Commonwealth, of the interior of the choir as seen from Prior Chillenden's pulpitum or screen, upon which the clock stood. It is a singular record of the building soon after the depredations of Richard Culmer (Blue Dick). His myrmidons are depicted at their fell work, breaking the windows and battering the ancient and at that time still surviving thirteenth-century stalls; but the real value of the painting lies in its laborious detail, which is exact, even to the number of stones in the pavement and courses in the pillars. Although both are gone, the original and proper position of the high altar and its altar screen with flanking doors is clearly indicated. The present position occupied by the altar was an innovation of the nineteenth century which it is difficult to justify. The builders' admirable original scheme, devised with the high altar for its focus, round which the monuments of future centuries grew of set purpose, has been falsified. Needless to say that much appears in Johnson's picture which we would fain still have with us. Had it only been painted fifteen years earlier it would have been a priceless record of lost treasures.

The Illumination of Interiors.

Three special lectures on the "Illumination of Interiors" are in course of delivery at the East London College. The first, on "Principles and Daylight Illumination," was given last Tuesday by Professor J. T. Morris, who will also give the second, on "Artificial Illumination by Gas and Electricity," next Wednesday evening. The third, on 22nd June, will be by Professor C. A. M. Smith, and will deal with "Illumination by Petrol Air-gas."

COURSE IN DESIGN AT THE MASSACHUSETTS INSTITUTE.

Professor D. Despradelle gives in *The Tech* (Boston) the following account of the course in Design which he directs at the Massachusetts Institute of Technology:—

It is in the second year that the students are given the first ideas of architecture, that in a certain way the foundation stone of architectural education is laid. By the faithful copy of fragments of architecture they familiarise themselves little by little with examples of antiquity where both reason and beauty find their best expression. They pass by successive studies of the orders from the Doric to the Ionic, from the Ionic to the Corinthian. It is the study of the orders with their consequent development. They should acquire not only by heart all the dimensions of the examples they have copied, but they should retain sufficiently the proportions to reproduce the sentiment of certain parts of the Parthenon as well as of the Theatre of Marcellus.

At the same time certain beautiful originals are copied, designs of masters which we are proud to possess. By this method the study of the archæological as well as of the analytical side of the work of architecture is well started. Students acquire also that first technique so necessary in accustoming themselves to compare, to observe, and finally to express on paper, not an illustration, but to draw a fragment or even a small *ensemble* in such a manner that it suggests the third dimension, or in other words, the architectural work.

Third Year.—The third-year students continue to familiarise themselves with examples always derived from the great classic epochs, but of a higher order, copying less servilely; and in giving to the word "classic" a broader sense they should begin to discern and to understand the signification of the edifices of the past and the proper application of the orders with their proportions. Sometimes comparative studies permit a clear comprehension of the relation of edifices and architectural evolution, and a penetration of the spirit of civilization and art. More often little problems repeated several times each term are given; as for example, "An Entrance to an Administration Building," "A Small Museum," or "Some Special Dwelling House," etc., requiring a choice of appropriate elements, in order to use their initiative. So that in place of making drawings to a single scale almost arbitrary, as in the preceding year, they make in the first place a little *ensemble*, with the different means of representing plan, façade, and section; then, at times, the most important portion to a large scale. This last well-developed part is not presented barrenly on the drawing-board as the trade-mark of a haphazard production, but is well drawn in every detail, and arranged in a frontispiece in such a way as to inspire in the students ideas of structural decoration.

During the course of the different exercises or problems, the elementary principles of composition are given by individual criticism. The different processes of expression are presented and criticised. Students acquire a technique varied, broad, and flexible, and at the same time a beginning of a method simple and ordered, permitting the intelligent approach of an architectural problem. It is only when that important and indispensable third year has been thoroughly followed that the student has the proper equipment to derive real profit from the fourth year course.

Fourth Year.—In the fourth year more liberty is given the students. They are no longer limited by Greek and Roman art and a few examples of the Renaissance. The Romanesque and Gothic epochs, the Renaissance of the different countries, and the best examples of the 17th and 18th centuries, as well as of the intermediary epochs, are opened to them.

"Composition" now becomes the key-note of their efforts. They are made to understand that a "work of architecture" does not consist in the juxtaposition of examples taken servilely from European buildings, or of their arrangement in mosaic, but that above all it is necessary to make a judicious and appropriate choice of the elements at their command, and to arrange them in an harmonious manner, that they may be members of the same family, and that they may convey a definite meaning. . . .

They must understand that the first preoccupation of an architect is to establish with simplicity and logic a reasonable and practical disposition of his plan with the different services, as well as to express the destination and purpose of the edifices, taking into account surroundings, climate and materials, and giving to the interior of the building, as well as to its façades, a decorative treatment at once homogeneous and appropriate. The customs and habits of the locality should be considered also, together with the aspirations of the people in whose midst the building is to be erected. With this aim in view the problem is presented with freedom of interpretation and a choice of inspiration which the character of the subject may suggest.

Problems of three and five weeks' duration alternate with short problems called "esquisse-esquisse" made in two days. These last consist in the development and intelligible presentation of a small subject without criticism from the instructor, except a few general remarks. Such an exercise develops decision and initiative, obliging the student to formulate ideas with celerity and care.

But the chief exercise of the course is the problem of longer duration which is presented as follows:—On a certain date a programme is delivered, A Club House, for example, with all the requirements for such a subject.

The student is given two afternoons to express in a succinct manner the principle of his composition without the help of the instructor. He then gives the instructor his original while keeping for himself a duplicate.

Preserving and respecting the principle of the sketch, it is developed under the instructor's guidance by repeated criticisms and the exposition of the principles of composition, permitting the student to give a precise form to his thought.

Upon the completion of the problem a general exhibition of all the drawings—plans, façades, sections, and sometimes perspectives or details—takes place. A judgment establishes the order of merit, followed by a general criticism before the entire class in the form of a *résumé*, which brings the exercise to a definite conclusion.

Such an exercise, the last week of which all students, third, fourth and fifth years, work practically together, aiding each other in the most fraternal and admirable way, is beneficial to everybody, bringing to light the different points of view and developing the individuality. It is the typical and most important exercise at the Institute. . . .

The second term of the fourth year is practically devoted to the thesis, the final point of the regular studies; that is to say, a more profound study of a subject developed in all its parts, chosen by the students themselves, in which they examine exhaustively the different technical sides of the problem.

Fifth Year.—Beyond a question the diploma awarded at the end of the fourth year is of great significance. The knowledge of the young architect is precious, as the professional success of generations of students testifies. It is easy to see, however, that with such a programme of study as that demonstrated above, a programme imperiously imposed by the conditions of modern life, the time of preparation for the important and complex rôle to be filled by the architect is all too limited. The way is but half-achieved. Scarcely five, or at most six, months have been given to acquire and assimilate a knowledge which should become a beacon and not a burden, exacting a devotion of as many years as in the great centres of study in Europe.

So clearly recognised did this need become that a fifth year of study was established at the Institute, of which the results from its *début* have been most satisfactory.

Although an appreciation from the professor in charge is somewhat delicate, yet things must be explained. Facts are facts. Theoretically and practically from the outset the fifth year has been a success. It has become an important factor with the students; it has raised the standard of architectural education in America, and it is regarded as a necessity by experts both at home and abroad. The number and importance of the problems of the fourth year being of necessity inadequate, owing to limited time, the plan of work for the fifth year embraces the more profound study of the types of edifices and compositions which explain or resume the many and varied manifestations

of a great people; as for example, a courthouse, a city hall, important residences, hospitals, churches, large assembly halls, theatres, a university, bathing establishments, establishments for the people, commemorative monuments, etc. etc. To these are added "esquisses-esquisses" of 12 and 24 hours "en loge," and special problems for the study of works in different materials: metal gates, doorways of wood, a church pulpit, the interior decoration of a public hall, of a private residence, to cite a few examples. A larger place is given the plan, which is of capital importance—indeed, the foundation in considering an architectural problem.

Much time is devoted to theoretical and practical study, together with a comparative study of the different classes of architectural compositions; as for example, compositions compact and dispersed, private and public, open-air compositions, edifices of administration, charity, education, and those of purely business utility: bridges, squares, public gardens, the lay-out of a town; plans comprising several buildings upon flat sites, upon declivities, at the seaside, etc.

Numerous illustrations of edifices are presented, together with an analytical revision and an archæological *résumé* of the great periods of art in the several orders, administrative, glorious, religious, and domestic—such as Greece with its temples, Rome with its forum, baths, and triumphal arches; the Byzantine, the Romanesque, and the Gothic periods. The imposing manifestations of the Renaissance, the seventeenth and eighteenth centuries in France, not omitting the best examples of the nineteenth century, restorations of the antique, and the *concours* of the Grands Prix de Rome which so well resume many principles, eloquently demonstrate the application of the lessons of the past to the manifestations of the present.

Students in this course are enabled to devote practically the whole time to architecture proper. Every problem is studied on all sides, practical and æsthetic, and is synthesised as a perfect and well-proportioned organism. Repeated studies are made until plans, façades, sections, and details harmonise, unite, and support each other, as the skin clothes the body, leaving the form and structure beneath it to be divined.

Résumé.—Commencing with the classical grammar of architecture, which defines so simply the architectural work, the past is studied in all its forms, historical, structural and æsthetic, and the lesson to be derived therefrom, together with what is transmissible from one generation to another, is sought. Quality of draughtsmanship and design is constantly developed in order that the architect may express his practical ideas in a complete and artistic manner. The transformation of architecture and the styles under the influence of religious, philosophical, and social currents, are shown by repeated criticisms and lectures. By varied problems, academic, semi-classic, romantic, mixed or modern, the creative and imaginative faculties of the student are awakened. A man is formed with an equipment which permits him to discuss intelligently, pencil or brush in hand, with all his collaborators—engineers, constructors, decorators, sculptors, etc.

By developing the education of the mind, the hand, the eye, and the heart, a well-informed man of the present as well as of the past is produced—a man having at command a means of expression which permits his approach to all the problems of modern needs, one who formulates his thought with clearness and who is abreast of his time and of his epoch; he is endowed with the precision of the engineer, the soundness of mind of the man of business, and the imagination of the artist. In other words, a leader in the accomplishment of architectural work—the "Maître de l'œuvre," not a specialist—a man useful and indispensable to his country.

LEGAL

Architect: Negligence: Damages.

RAIKES *v.* POWER, AND POWER *v.* RAIKES AND KING, BY COUNTERCLAIM.

This was an action heard before Mr. Justice Darling and a special jury in the King's Bench Division. Judgment was delivered on the 7th June. The action was originally brought to recover the amount due upon a contract to build a picture gallery for the defendant Mr. Power. Judgment was obtained for that amount, and the defendant Power then counter-claimed against Mr. R. T. Raikes, the builder, for breach of contract, and against the architect, Mr. C. Oury King, for negligence in the preparation of the plans and construction of the gallery.

Mr. Clavell Salter, K.C., and Mr. Harold Morriss appeared for Power; Mr. Foote, K.C., and Mr. Rayner Goddard for King; and Mr. Colefax for Raikes.

The *Times* report states that the plaintiff on the counterclaim, Mr. William M. Power, a picture dealer, in January 1908, took a lease of 123A Victoria Street, at a rental of £500 a year. For the purposes of his business the plaintiff arranged with the defendant, Mr. Charles Oury King, who was the architect of the estate, to prepare plans for the erection of a picture gallery, and it was arranged that Mr. R. T. Raikes should contract to do the work. The building was completed in March 1909. The pictures were hung in the gallery, and it was found that some of them were affected by damp and seriously injured. The pictures are valuable, being by Sir Joshua Reynolds, Gainsborough, Hogarth, and other celebrated artists. The building was examined, and it was discovered that the ventilation was defective. It was contended on behalf of Mr. Power that it was necessary and proper in the construction of a picture gallery, and for the subsequent use of it for the exhibition of pictures, that provision should be made in the walls for an air draught or other means of ventilation to dry and keep dry the walls, so as to prevent the pictures from becoming damp and mildewed; that no air draught or proper means of ventilation was provided, and that this caused the damage complained of. On the part of the Messrs. Raikes and King, it was contended that there had been no negligence in the design or construction of the building, and that the damages had been greatly exaggerated.

Mr. Justice Darling, in summing up to the jury, said the questions for them were: (1) Was Mr. Raikes guilty of

negligence in building the picture gallery? (2) Was Mr. King guilty of negligence in designing or superintending the building of the picture gallery?

The jury found that Mr. Raikes was not guilty of negligence, but that Mr. King was, and they assessed the damages at £45.

The defendant on the counterclaim (Mr. King) having paid £105 into Court with a denial of liability, judgment was entered for him with costs, and it was ordered that £60 be paid out to him, the balance to remain in Court pending taxation.

London Building Acts: Council School Buildings: Fees of District Surveyor.

GALBRAITH BROTHERS *v.* DICKSEE.

This case came before the Lord Chief Justice and Justices Channell and Coleridge, sitting as a Divisional Court of the King's Bench Division, on May 24, by way of appeal by Messrs. Galbraith Brothers against an order made by Mr. Hopkins, the stipendiary magistrate sitting at Lambeth Police Court, for the payment by the appellants to Mr. Bernard Dicksee, the District Surveyor for Newington, etc., of the sum of £16 7*s.* 6*d.*, the District Surveyor's fees, according to the Schedule to the Act, in respect of the erection of a new school building and outbuildings situate and being the John Ruskin school for defective children, Beresford Street, Walworth.

It has been contended by the London County Council that since the transfer to them from the defunct School Board of the duties and properties of the Education Authority, the school buildings have become exempt from the operation of Parts VI. and VII. of the London Building Act 1894, and from the supervision of the District Surveyor. The question came first before the Court in the case of The London County Council *v.* The District Surveyors' Association (Incorporated) and Willis, on the question of the right of the District Surveyor to notice under section 145 of the Act of 1894. Mr. Garrett, the stipendiary magistrate sitting at the South Western Police Court, had held that the school buildings were not exempt from the operation of Parts VI. and VII. of the Act, and that notice must be given; from which decision the London County Council had appealed, and the Divisional Court had held that notice must be given to the District Surveyor, as, apart from Parts VI. and VII., he had important duties to perform; in any case, therefore, notice must be given.

This case now came before the Court for a decision upon the point as to whether the District Surveyor is entitled to the fees prescribed in the Schedule.

From the case as stated by the Magistrate it appeared that in May 1908 the County Council had entered into a contract with the appellants to erect the school in question. The building was begun without notice having been served on the respondent, who accordingly wrote demanding notice. As the case of The London County Council *v.* The District Surveyors' Association was then pending, it was arranged that the question as to building notice should stand over until that case was decided. The respondent continued to survey the works during progress, and after the decision had been given in the case referred to he again demanded notice, which was then given, and on completion he rendered his account for the fee provided in the Third Schedule to Part I. of the Act of 1894. Payment having been refused, a summons had been issued, and the magistrate, although he was of opinion that the buildings were exempt from Parts VI. and VII., had decided that the fees were due and had made the order for payment, which decision was now appealed against.

Mr. Montague Lush, K.C., and Mr. Bodkin appeared for Messrs. Galbraith: Mr. Horace Avory, K.C., and Mr. Walter Ryde for the District Surveyor.

Mr. MONTAGUE LUSH in opening the case for the appellants said that it was contended on their behalf that the said buildings were buildings exempted by section 201 (5) from Parts VI. and VII., and that in consequence the respondent had no duties to perform under such parts of the Act, and was not entitled to claim or receive fees specified in the Schedule.

THE LORD CHIEF JUSTICE: That was the point raised in Willis's case.

Mr. LUSH: The point there was whether he was entitled to notice at all.

THE LORD CHIEF JUSTICE: I know, but the ground of his not being entitled to notice was that he had no duties because it was an exempted building.

Mr. LUSH, proceeding, argued that if they were exempt from Parts VI. and VII., they were exempt from having the Surveyor's supervision of the structure; and it was in respect of his supervision that the first part of the schedule applied.

THE LORD CHIEF JUSTICE: It does not say in respect of supervision. That is just what I had in my mind in the other case. It is not in respect of supervision, but in respect of protecting other interests which might be interfered with by the construction of the building.

Mr. JUSTICE CHANNELL: As far as I can see, this schedule provides for a first and general fee in respect of a new building; and then following on that there are different fees, which are not charged in this case because he has not done them. There is one general fee; and if this is a new building he is entitled to that general fee. It may be only 10*s.*, but that may be merely for making a note in his book that he has received notice.

Mr. LUSH, proceeding, urged that the consequence would be that the same fees would be payable to the District Surveyor who had the work of supervising the construction of the whole building as would be payable if he only had the building line to look after.

Mr. JUSTICE CHANNELL: I should say the same fees are payable in respect of a building that gives a great deal of trouble as for one that gives no trouble at all. The one may be a careful man who does not give much trouble, whereas another may give a lot of trouble. It is the same lump sum fee.

Mr. LUSH urged that the fee schedule was framed to meet the case where the District Surveyor had the power of varying and interfering with the structure of the building.

THE LORD CHIEF JUSTICE: I find nothing in the beginning about supervising or doing work, or anything of the kind. It is for the building.

Mr. LUSH said that if the fee is a general fee merely because a new building is put up, of course he could not contend that the Surveyor was not entitled to the fees: but, on the other hand, he contended that the fees in the schedule were for rendering services by the District Surveyor, which services in this case not only had not been rendered, but could not be rendered: consequently the Surveyor could not be entitled to the fees.

Mr. JUSTICE CHANNELL: There are certain services for which he is to have a special fee. Then the services, whatever they may happen to be, that he has to render are covered by the one general fee; and that is a fee to be in respect of the particular building, covering therefore anything he may happen to have to do, whatever it is, small or big, in respect of that. If it happens to be nominal, so much the better for him.

THE LORD CHIEF JUSTICE, in giving judgment, said he would not call on Mr. Avory. This was an attempt that he foresaw when the previous case was before him. In the course of the argument he remembered saying, What does it matter if a notice has to be served? And they had said, very wisely, that notice might entitle the Surveyor to a fee. Having been wrong, they were now coming to endeavour to get the Court to say that, although there is a lawful notice imposed on the builder, the Surveyor who acts in pursuance of that notice is not entitled to fees. The case was really concluded, but he would

briefly state what seemed to him the conclusive answer to Mr. Lush's argument. As was pointed out in the previous case, section 201 would only exempt these buildings from Parts VI. and VII. of the Act; if the notice that had to be given to the Surveyor were given to him by virtue of Parts VI. and VII., and if his duties were confined to those parts, there would have been a good deal in the argument that, inasmuch as all his duties were under Parts VI. and VII., and the notices were given under those parts, therefore, as he had no other duties to perform, there was no necessity to give him notice. But Mr. Lush only made his argument possible by using the words "supervising the building" in a sense that was not properly applicable to the case at issue. It was not supervising the work, it was doing the work or duty of a District Surveyor. It could not be seriously disputed that under Part V. the Surveyor had many things to watch; he had to watch the height; he had to watch the building line; he had to watch the by-laws. It might be that none of those things were likely to be infringed, but at the same time they had the Act to deal with. His Lordship quoted sections 145 and 146. Mr. Lush had said many times that in this particular building he would have nothing to do. That might be, but it did not follow that because he had nothing to do in a particular case, he would have nothing to do in any case; and, as Mr. Justice Channell has said, in some buildings he might have to go there much more often because the builder might be a person who would only observe the law when the Surveyor was looking after him. Under those circumstances having duties to perform under sections 145 and 146, and notice having been given to him (as it ought to have been given him) and having a duty to go there, section 154 followed (which his Lordship quoted). He then turned to the Fee Schedule. All these fees were calculated by the number of squares that there are in the particular building, and they were covered by the fee on the new building. As Mr. Justice Channell had pointed out, it did not say "for supervising the materials," or "for supervising the work as it is being carried out," but it was a fee to be paid on that building because the Surveyor had got simply to keep the eye of a watch-dog on what was going on. The London County Council were not entitled to come into Court and to say, "We are so good and so virtuous that we never can put the Surveyor to any trouble." So much the better for the Surveyor. He had a fee under the statute for doing his duty, and if the builder was so good that he never wanted watching at all, he got his fee for very little work. His Lordship pointed out that the third part of the Schedule provided fees for special services; and therefore the Schedule did contemplate fees for general services (which might in some cases be for no services at all) and other fees for special services. This case was an attempt to render of no effect the judgment in the previous case by holding that though notice must be given, yet the Surveyor was not entitled to fees. The decision of the magistrate was right, and the appeal must be dismissed.

Mr. Justice Channell and Mr. Justice Coleridge agreed.

Mr. AVORY: I understand this judgment is not to be taken as deciding that these buildings are exempt under section 201.

THE LORD CHIEF JUSTICE: I have decided nothing more than that these fees are payable whether they are exempt or not.

Mr. AVORY: I only want your Lordship's judgment not to be misunderstood.

THE LORD CHIEF JUSTICE: No, I have not said anything about their being exempt. I have assumed for this purpose in my judgment that Parts VI. and VII. do not apply.

Mr. AVORY: Your Lordship has not decided that. The appeal will be dismissed with costs?

THE LORD CHIEF JUSTICE: Yes.

MINUTES. XV.

At the Fifteenth General Meeting (Business) of the Session 1909–10, held Monday, 6th June 1910, at 8 P.M.—Present: Mr. Reginald Blomfield, M.A. Oxon., A.R.A., F.S.A., *Vice-President*, in the Chair; 33 Fellows (including 8 members of the Council) and 12 Associates (including 1 member of the Council)—the Minutes of the Meeting held 23rd May 1910 were read and signed as correct.

Mr. Robert Cochrane, LL.D., I.S.O., F.S.A., of Dublin, *Fellow*, attending for the first time since his election, was formally admitted by the Chairman.

The Secretary read the following Reports of the Scrutineers appointed to count the votes recorded for the election of the Officers, Council, and Standing Committees for the ensuing year of office:—

Scrutineers' Reports.

The following have been elected:—

PRESIDENT.—Mr. Leonard Stokes (unopposed).

PAST PRESIDENTS.—Thomas E. Collcutt; Ernest George (unopposed).

VICE-PRESIDENTS.—Reginald Blomfield; Alfred W. S. Cross; E. Guy Dawber; Ernest Newton (unopposed).

HONORARY SECRETARY.—Henry T. Hare (unopposed).

REPRESENTATIVES OF ALLIED SOCIETIES.—H. C. Charlewood, Newcastle; J. B. Wilson, Glasgow; P. S. Worthington, Manchester; Wm. M. Cowdell, Leicester; Arthur S. Dixon, Birmingham; Robert Evans, jun., Nottingham; Sydney D. Kitson, Leeds; Arnold Thornely, Liverpool; John Watson, Edinburgh (unopposed).

REPRESENTATIVE OF THE ARCHITECTURAL ASSOCIATION.—Arthur Keen (unopposed).

HONORARY AUDITORS.—John Hudson; William Henry Burt (unopposed).

(*Signed*) Edward B. I'Anson, *Chairman of Scrutineers.*

MEMBERS OF COUNCIL.—*Elected*: Gibson, 565 votes; Lanchester, 539; Prentice, 529; P. Waterhouse, 505; Hall, 502; Lutyens, 496; Gotch, 495; Pite, 487; Ricardo, 486; Burnet, 420; Flockhart, 416; Adams, 376; Thomas, 365; Cave, 360; Hubbard, 355; Forsyth, 341; Clarke, 338; Statham, 327.

Not elected: Rickards, 326 votes; Dunn, 312; Woodward, 302; Green, 301; Tanner, 288; Downing, 272; Pick, 252; Warren, 243; Quennell, 233; Wimperis, 225; Farrow, 198; White, 191; Peach, 185; Brewill, 173; Solomon, 172; Scott, 167; Ogden, 151; Perks, 148; Jemmett, 137; Wilson, 91; Figgis, 79; Tubbs, 78; Nield, 75; Hale, 70; Doll, 68.

809 voting-papers received, including 29 spoilt.

(*Signed*) F. Dare Clapham, J. L. Seaton Dahl, J. M. Stanley Burmester, F. R. Gould Wills, T. Dinwiddy, Arthur Wm. Kenyon, Allan Graham, H. H. Langston, R. H. Mew, Edward B. I'Anson, *Chairman, Scrutineers.*

ASSOCIATE MEMBERS OF COUNCIL.—*Elected*: Wilson, 616 votes; Greenslade, 604; Triggs, 542; Reilly, 468; Wills, 435; Hutchinson, 400.

Not elected: Munby, 395; Ayrton, 328; Gammell, 305. Six spoiled papers.

(*Signed*) Richd. M. Roe, Edward B. I'Anson, *Chairman, Scrutineers.*

ART STANDING COMMITTEE.—*Fellows.—Elected*: Dawber, 611 votes; Lutyens, 578; Hare, 544; Lethaby, 531; Flockhart, 475; Simpson, 468; Rickards, 467; Horsley, 440; Lorimer, 420; Cave, 413.

Not elected: Brierley, 405; Balfour, 367; Forsyth, 361; Blanc, 257; Bolton, 231; Watson, 156; Reay, 136; Perks, 131.

(*Signed*) Robt. C. Murray, Horace Farquharson, C. Collas Robin, W. Ernest Hazell, H. W. Hetherington Palmer, Edward B. I'Anson, A. Howell, *Chairman, Scrutineers.*

Associates.—Elected: Bidlake, 623 votes; Lucas, 574; Tapper, 506; Warwick, 484; Davison, 476; Wood, 475.
Not elected: Anderson, 401 votes; Ayrton, 386.
Twenty-eight spoiled papers.

(*Signed*) Robt. C. Murray, Horace Farquharson, C. Collas Robin, W. Ernest Hazell, A. Howell, Edward B. I'Anson, H. W. Hetherington Palmer, *Chairman, Scrutineers.*

LITERATURE STANDING COMMITTEE.—*Fellows.—Elected*: Spiers, 585 votes; Gotch, 560; Ricardo, 529; Nicholson, 510; P. Waterhouse, 500; Statham, 454; Baggallay, 398; Townsend, 377; Simpson, 364; Prynne, 363.
Not elected: Green, 354 votes; Corlette, 351; Warren, 314; L. Waterhouse, 221; Fyfe, 198; Dunbar Smith, 175; Jemmett, 163; Favarger, 142; Taylor, 136.
Fifty-one spoiled papers.

(*Signed*) H. Seton Morris, Harold French, A. Wyatt Papworth, Edward B. I'Anson, *Chairman*, John Hunt, *Scrutineers.*

Associates.—Elected: Wontner Smith, 550 votes; Stratton, 528; Passmore, 508; Ward, 476; Sayer, 426; Lishman, 423.
Not elected: Davidge, 318 votes; Hiorns, 275.

(*Signed*) John Hunt, A. Wyatt Papworth, Harold French, Edward B. I'Anson, *Chairman*, H. Seton Morris, *Scrutineers.*

PRACTICE STANDING COMMITTEE.—*Fellows.—Elected*: W. Woodward, 480 votes; Max. Clarke, 461; A. S. Snell, 437; A. W. S. Cross, 423; G. Hubbard, 420; Atkin-Berry, 384; H. Tanner, jun., 365; Chatfield Clarke, 331; Douglass Mathews, 322; T. H. Watson, 320.
Not elected: W. H. White, 315 votes; L. Solomon, 280; H. A. Satchell, 264; E. Flint, 241; S. P. Pick, 229; W. G. Wilson, 229; G. E. Nield, 172; W. G. Waymouth, 167; P. B. Tubbs, 137; H. P. Monckton, 122; O. C. Hills, 113.
Sixty-six spoiled papers.

(*Signed*) Sydney F. Bartlett, John Hunt, Frank J. Potter, Charles B. Bone, L. K. Hall, Edward B. I'Anson, *Chairman*, *Scrutineers.*

Associates.—Elected: H. J. Pearson, 458 votes; E. Greenop, 446; E. R. Hewitt, 433; A. W. Tanner, 420; H. H. Langston, 332; K. Gammell, 331.
Not elected: H. Shepherd, 319 votes; E. G. Page, 306; H. Porter, 304; M. S. Hack, 200.

(*Signed*) Charles B. Bone, L. K. Hall, Sydney F. Bartlett, John Hunt, Frank J. Potter, Edward B. I'Anson, *Chairman*, *Scrutineers.*

SCIENCE STANDING COMMITTEE.—*Fellows.—Elected*: H. D. Searles-Wood, 588 votes; H. P. Adams, 551; M. Garbutt, 541; W. Dunn, 524; J. Murray, 508; B. Dicksee, 487; C. S. Peach, 478; F. Hooper, 473; F. R. Farrow, 471; G. Hornblower, 388.
Not elected: W. E. V. Crompton, 387 votes; A. W. Moore, 378; R. H. Weymouth, 338; G. A. Lansdown, 324.
Associates.—Elected: E. W. M. Wonnacott, 483; A. E. Munby, 470; E. A. Young, 459; H. W. Burrows, 414; C. J. Marshall, 413; D. L. Solomon, 403.
Not elected: A. S. Tayler, 365; J. P. Clark, 327; J. W. Stonhold, 275; S. W. Bensted, 172.
Nineteen spoiled papers.

(*Signed*) Lawton R. Ford, Percy Cotton, Henry James Wise, C. Barry Cleveland, H. S. East, Edward B. I'Anson, *Chairman*, *Scrutineers.*

Reference having been made to the large number of rejected voting-papers, Scrutineers present explained that the papers were invalid owing to the voters disregarding the printed directions and returning too many names.

On the motion of the Chairman a hearty vote of thanks was accorded to the Scrutineers for their labours in connection with the elections.

The following candidates were elected by show of hands under By-law 9:—

As FELLOWS (4).

BARROW: Ernest Robert [*A.* 1894, *Ashpitel Prizeman* 1893].
COOKSEY: Arthur William [*A.* 1888].
DAWSON: William Bruce [*A.* 1901].
GILBERT: Horace [*A.* 1890].

As ASSOCIATES (8).

ALEXANDER: George Luard [*Special Examination* 1909].
BEALL: Walter John [*Colonial Examination* 1909] (Pietermaritzburg).
HADWEN: Noel Waugh [*P.* 1905, *S.* 1909, *Qualified* 1909] (Triangle, Yorks).
MUNNINGS: Joseph Fearis [*Special Examination* 1909] (India).
ROBERTS: David John [*Special Examination* 1909] (Birmingham).
SUTCLIFFE: Hartley [*Colonial Examination* 1909] (Melbourne, Australia).
TAYLOR: Edward Alexander [*Colonial Examination* 1909] (Sydney, N.S.W.).
THOMPSON: Morris [*P.* 1901, *S.* 1904, *Qualified* 1909] (Doncaster).

The Hon. Secretary having announced the receipt of a number of books presented to the Library a cordial vote of thanks was passed to the donors.

On the motion of Mr. H. Hardwicke Langston [*A.*], seconded by Mr. George Hubbard, F.S.A., [*F.*], it was unanimously

RESOLVED, that it be an instruction to the Secretary to provide and distribute to members attending when Papers are read a synopsis or an advance proof of the subject dealt with by the lecturer—such issue to be limited to 100 copies.

The proceedings closed and the Meeting separated at 8.50.

Special General Meeting (A.U.C. shares).

At a Special General Meeting, summoned by the Council in accordance with the provisions of Clause 22 of the Charter, and held Thursday, 9th June 1910, at 5.30 p.m. Present, Mr. James S. Gibson, *Vice-President*, in the Chair; 44 Fellows (including 9 members of the Council) and 14 Associates (including 2 members of the Council), the Chairman having briefly stated the purpose of the Meeting, explained the Council's reasons for bringing forward the resolutions of which notice had been given, and enumerated the advantages which would accrue to the Institute from the purchase of the shares of the Architectural Union Company.

After a short discussion the Chairman moved, and it was unanimously

RESOLVED, that the Council be empowered to purchase all the shares in the Architectural Union Company not now in the possession of the Royal Institute.

It was also unanimously

RESOLVED, that the Council be empowered to pay to Mr. Edward Freeman the sum of £1,250 in compensation for the eventual loss of his office as Secretary of the Architectural Union Company.

The proceedings then closed and the Meeting separated at 6 p.m.

Photo. Elliott & Fry.

Thos. G. Jackson. 1909.

THOMAS GRAHAM JACKSON, R.A., LL.D., F.S.A.

ROYAL GOLD MEDALLIST 1910.